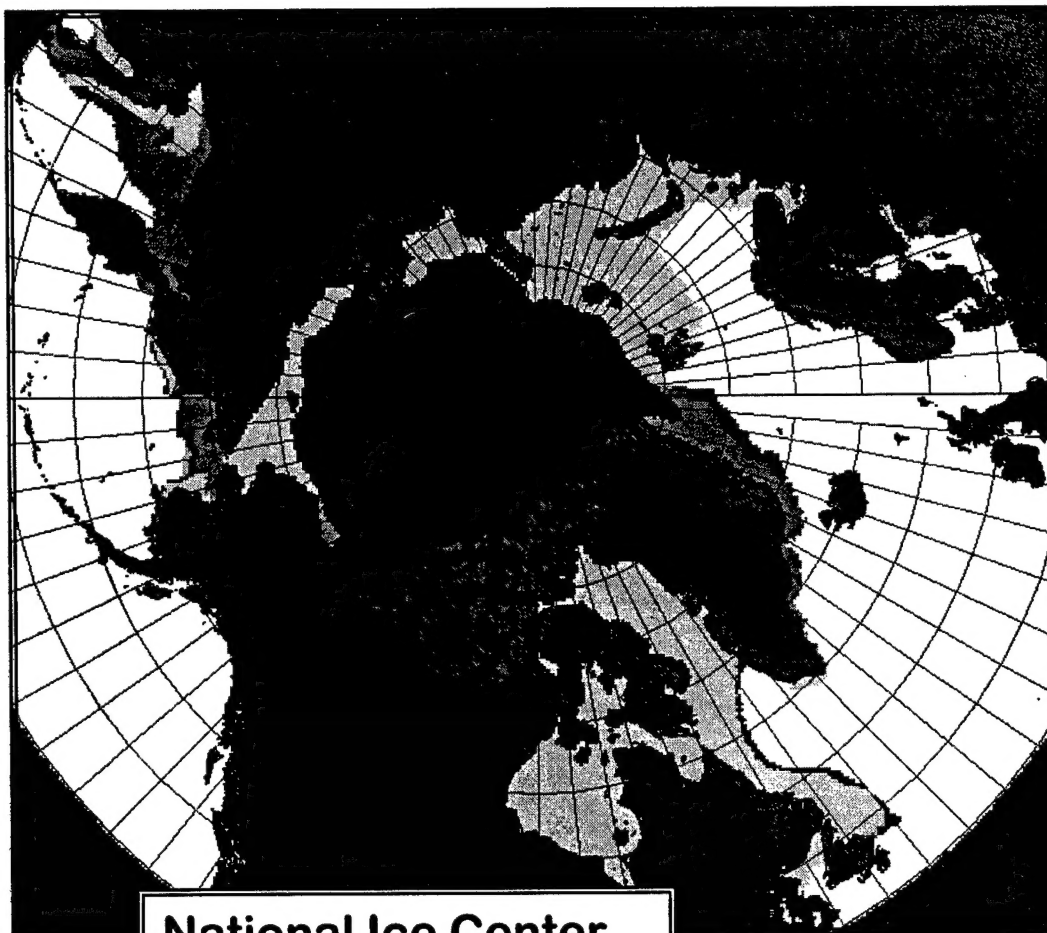




National Ice Center Special Arctic Sea Ice Supplement 1996



National Ice Center
4251 Suitland Road
FB4, Room 2301
Washington D.C.
20395

<http://www.natice.noaa.gov>

DTIC QUALITY INSPECTED 4

19990722 016

DISTRIBUTION STATEMENT A
Approved for Public Release
Distribution Unlimited

PREFACE

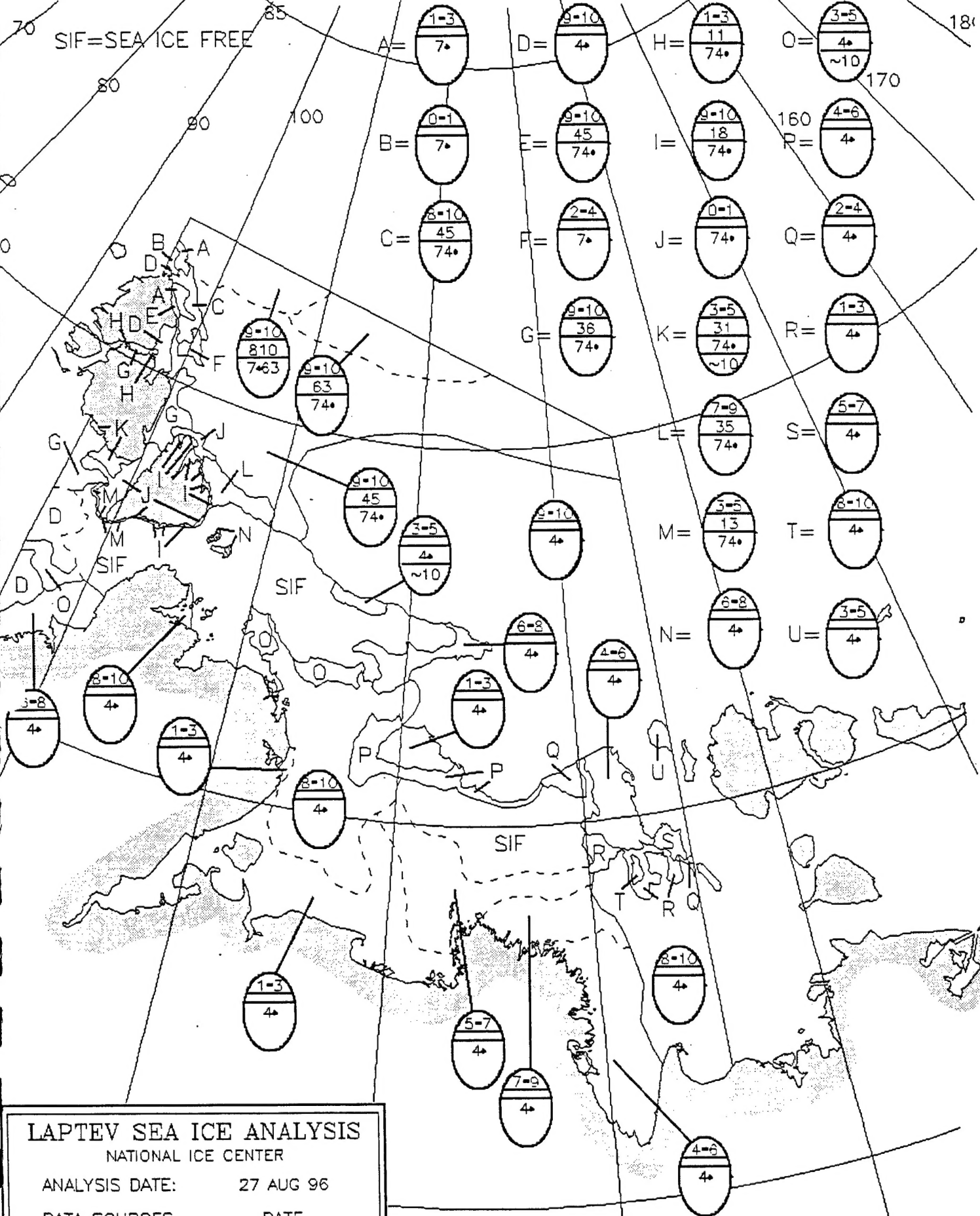
The National Ice Center (NIC), under sponsorship of the United States Navy, the United States Coast Guard, and the National Oceanic and Atmospheric Administration (NOAA), provides sea ice analyses encompassing the "Arctic" and the "Antarctic". These analyses continue the data set established under our previous name, the Joint Ice Center. These atlases continue the near real-time integration of remotely sensed data and point observations.

During the last week of August 1996, the West Arctic paper charts were replaced by digital charts in a Graphics Interface Format (*.GIF). Printouts of the digital GIF charts for all West Arctic regions are contained in this Special Arctic Supplement to the "Arctic Sea Ice Atlas". The atlas contains weekly charts depicting the sea ice extent and coverage in the Northern Hemisphere, West Arctic from the last week in August 1996 through December 1996, and will be the final atlas published in a hard copy format by the NIC. Future annual atlases will be available in a digital format on CD-ROM through the National Snow and Ice Data Center (<http://www-nsidc.colorado.edu>). NSIDC is the official archive center for the NIC.

The NIC uses a wide variety of data sources in the production of sea ice analyses. Table 1 lists the data sources used to produce the West Arctic weekly ice analyses contained in this publication.

Please direct questions or comments to the NIC Liaison Branch, at phone number (301) 457-5303 extension 311 or 303, facsimile number (301) 457-5300, or electronic mail address: liaison@natice.noaa.gov

SIF=SEA ICE FREE



LAPTEV SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 27 AUG 96

DATA SOURCES DATE

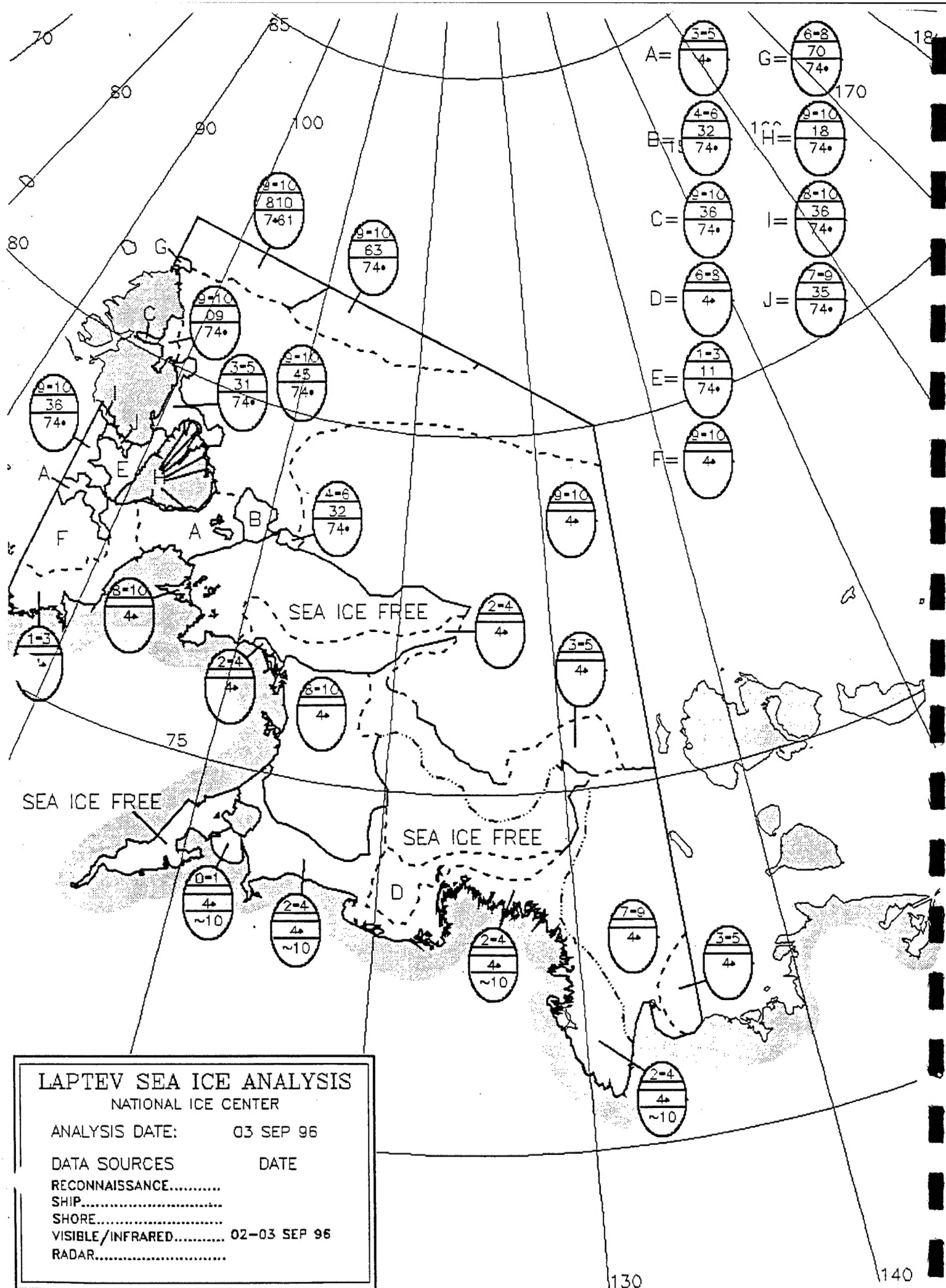
RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 25-26 AUG 96

RADAR.....



LAPTEV SEA ICE ANALYSIS NATIONAL ICE CENTER

ANALYSIS DATE: 03 SEP 96

DATA SOURCES DATE

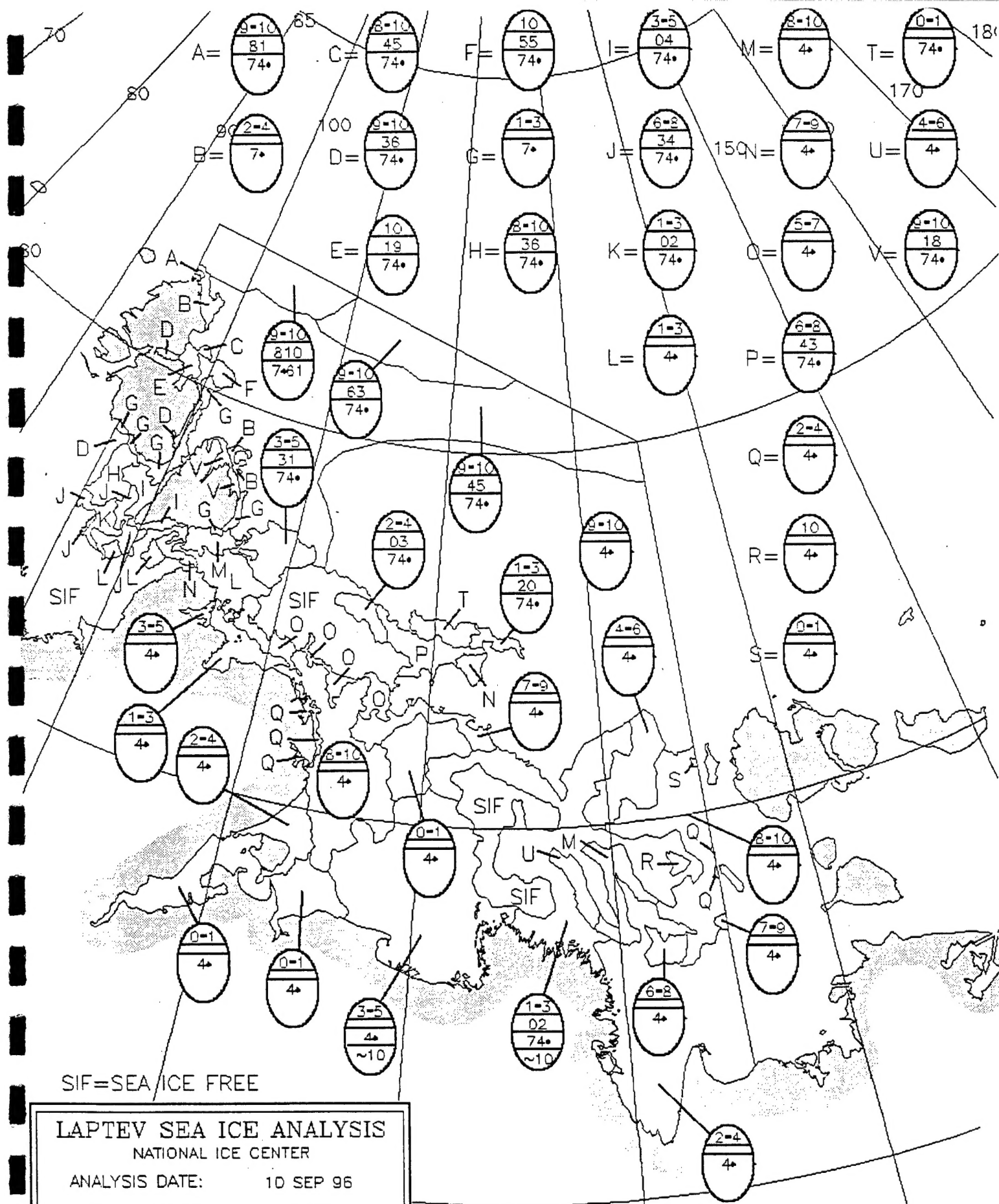
RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 02-03 SEP 96

RADAR.....



LAPTEV SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 10 SEP 96

DATA SOURCES DATE

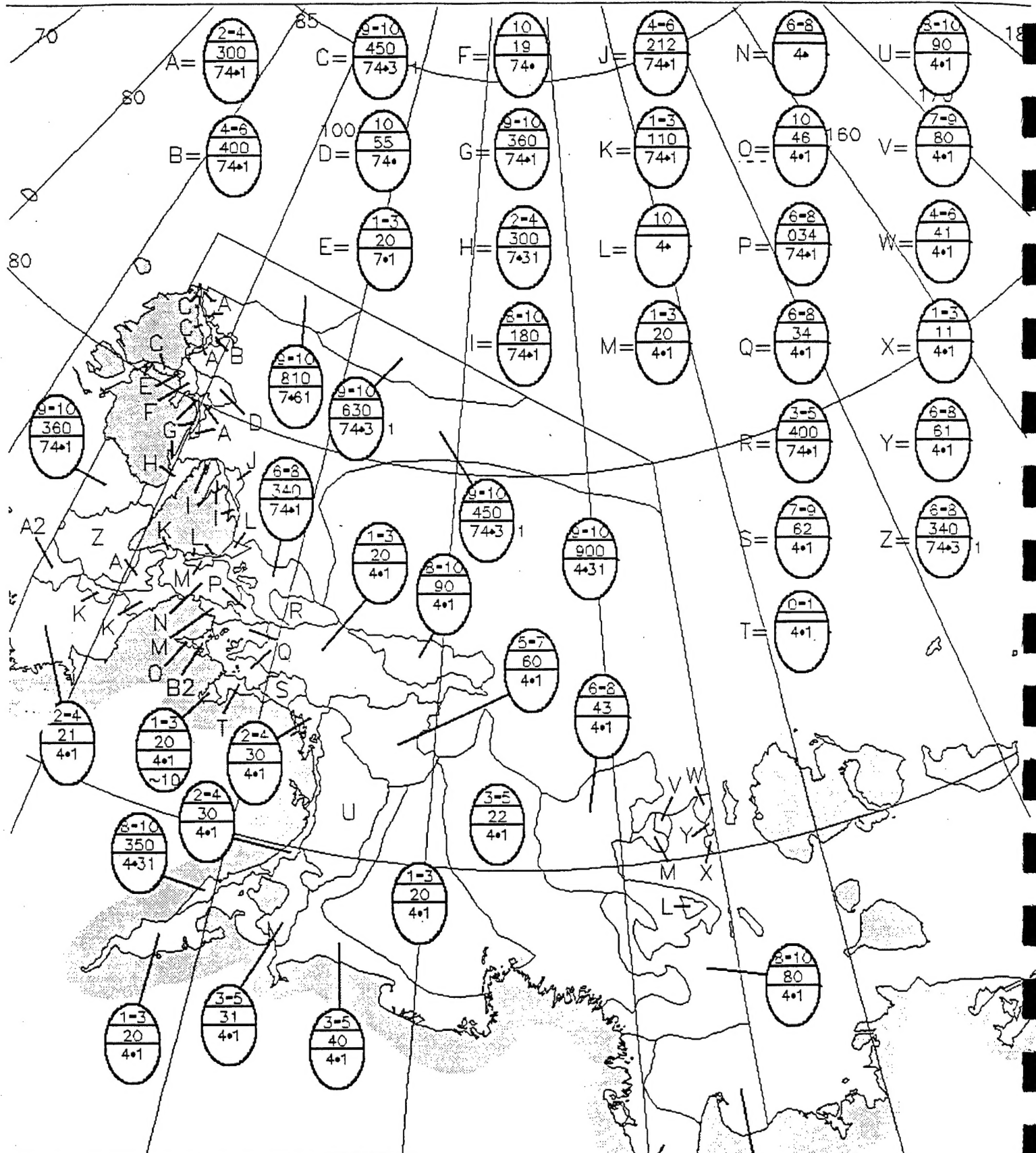
RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 8-10 SEP 96

RADAR.....



LAPTEV SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 17 SEP 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

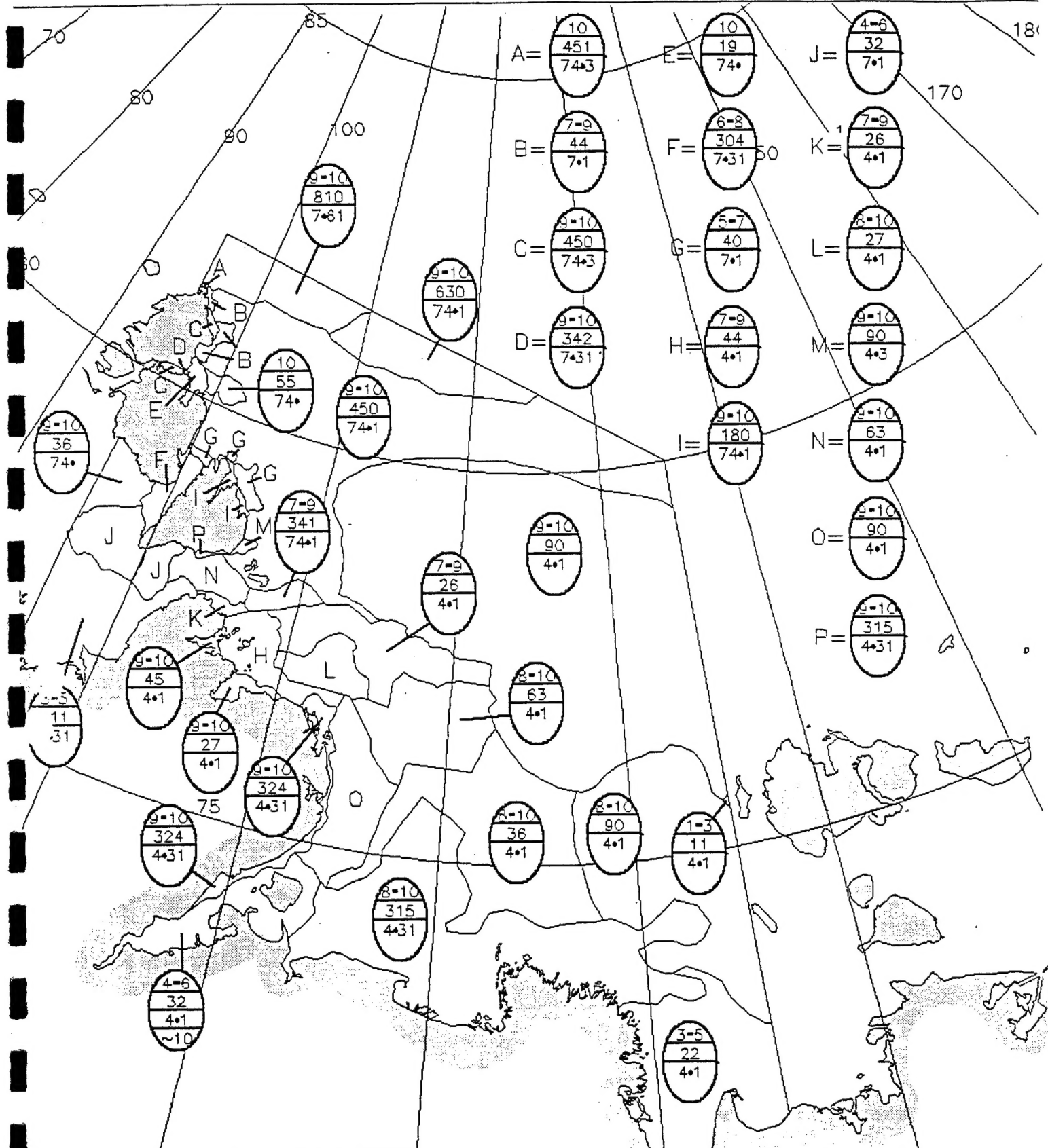
SHORE.....

VISIBLE/INFRARED..... 15-17 SEP 96

RADAR.....

A2= $\frac{2-4}{21}$
4.1

B2= $\frac{9-10}{45}$
4.1



A = $\frac{10}{451}$ $\frac{743}{743}$	E = $\frac{10}{19}$ $\frac{74}{74}$	J = $\frac{4-6}{32}$ $\frac{71}{71}$
B = $\frac{7-9}{44}$ $\frac{71}{71}$	F = $\frac{6-8}{304}$ $\frac{731}{731}$	K = $\frac{7-9}{26}$ $\frac{41}{41}$
C = $\frac{9-10}{450}$ $\frac{743}{743}$	G = $\frac{5-7}{40}$ $\frac{71}{71}$	L = $\frac{8-10}{27}$ $\frac{41}{41}$
D = $\frac{9-10}{342}$ $\frac{731}{731}$	H = $\frac{7-9}{44}$ $\frac{41}{41}$	M = $\frac{9-10}{90}$ $\frac{43}{43}$
	I = $\frac{9-10}{180}$ $\frac{741}{741}$	N = $\frac{9-10}{63}$ $\frac{41}{41}$
		O = $\frac{9-10}{90}$ $\frac{41}{41}$
		P = $\frac{9-10}{315}$ $\frac{431}{431}$

LAPTEV SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 24 SEP 96

DATA SOURCES DATE

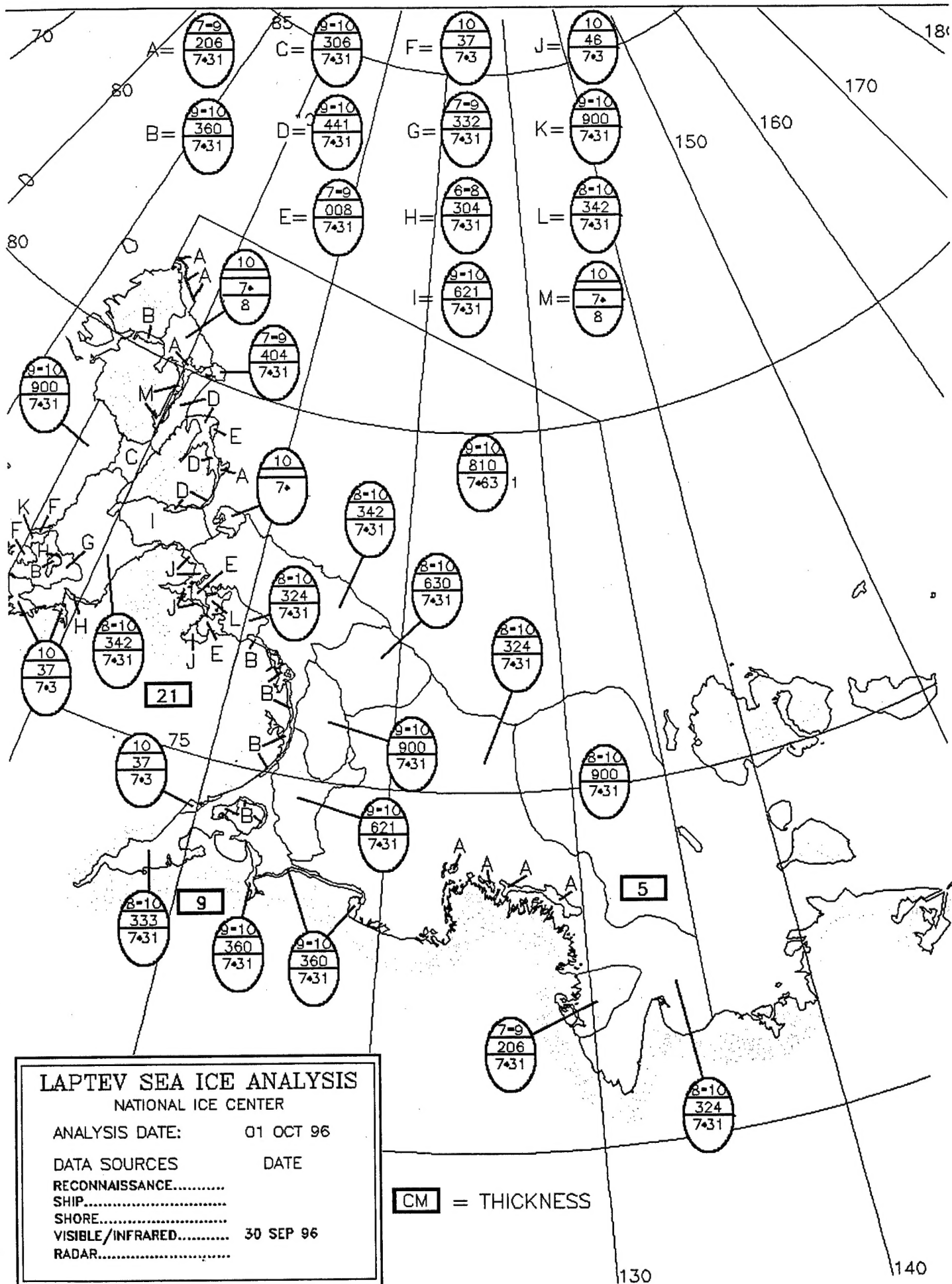
RECONNAISSANCE.....

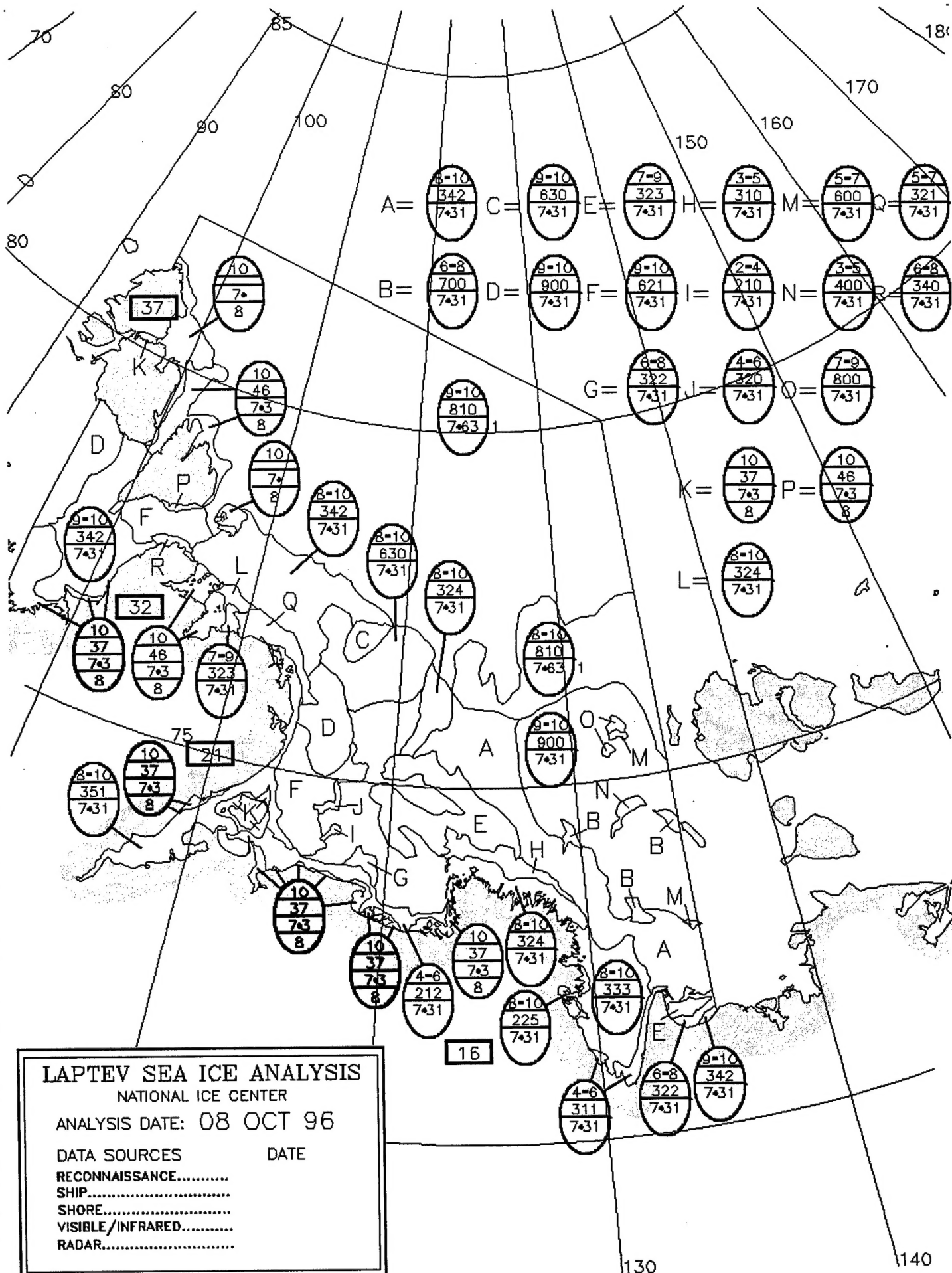
SHIP.....

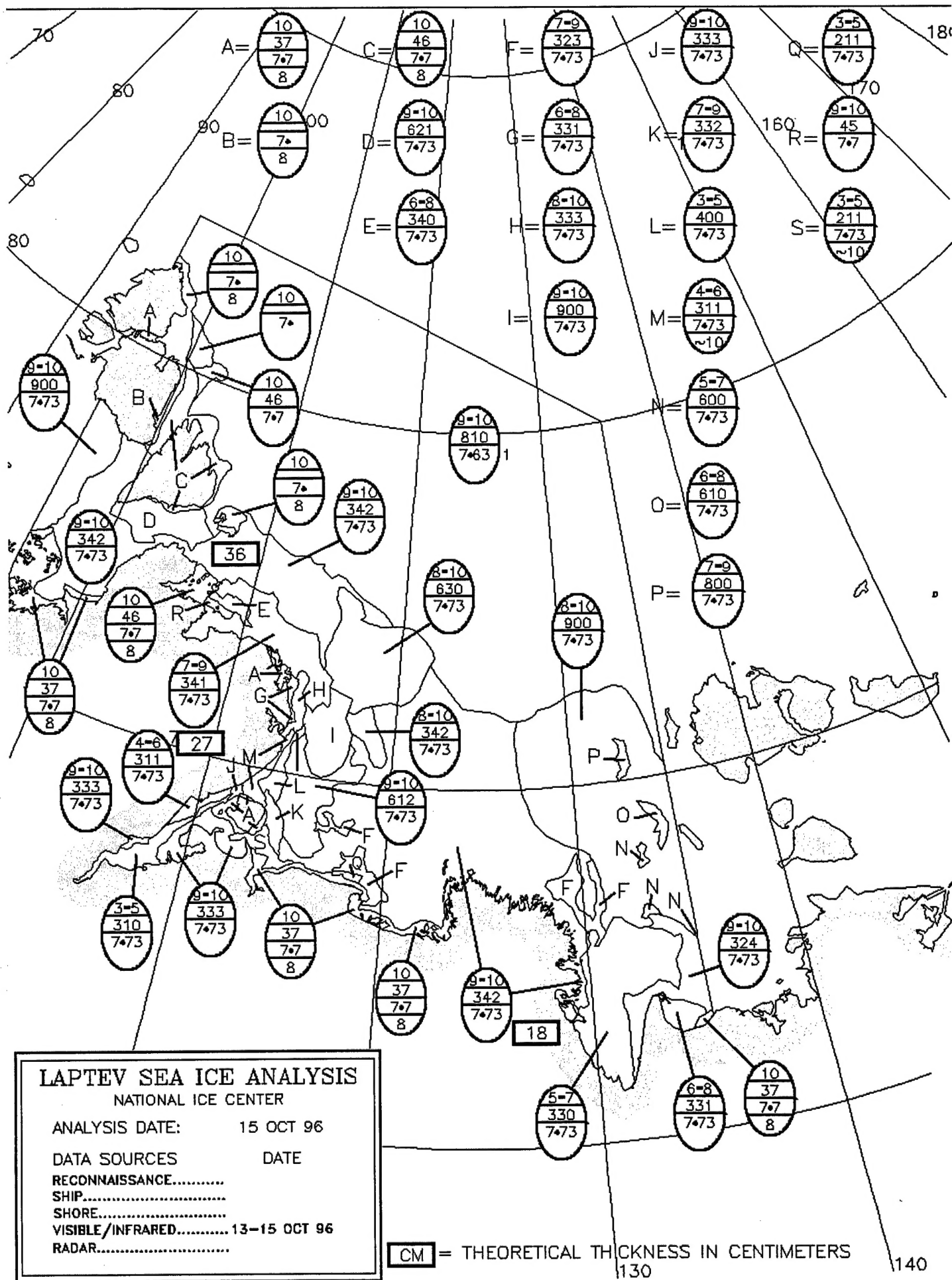
SHORE.....

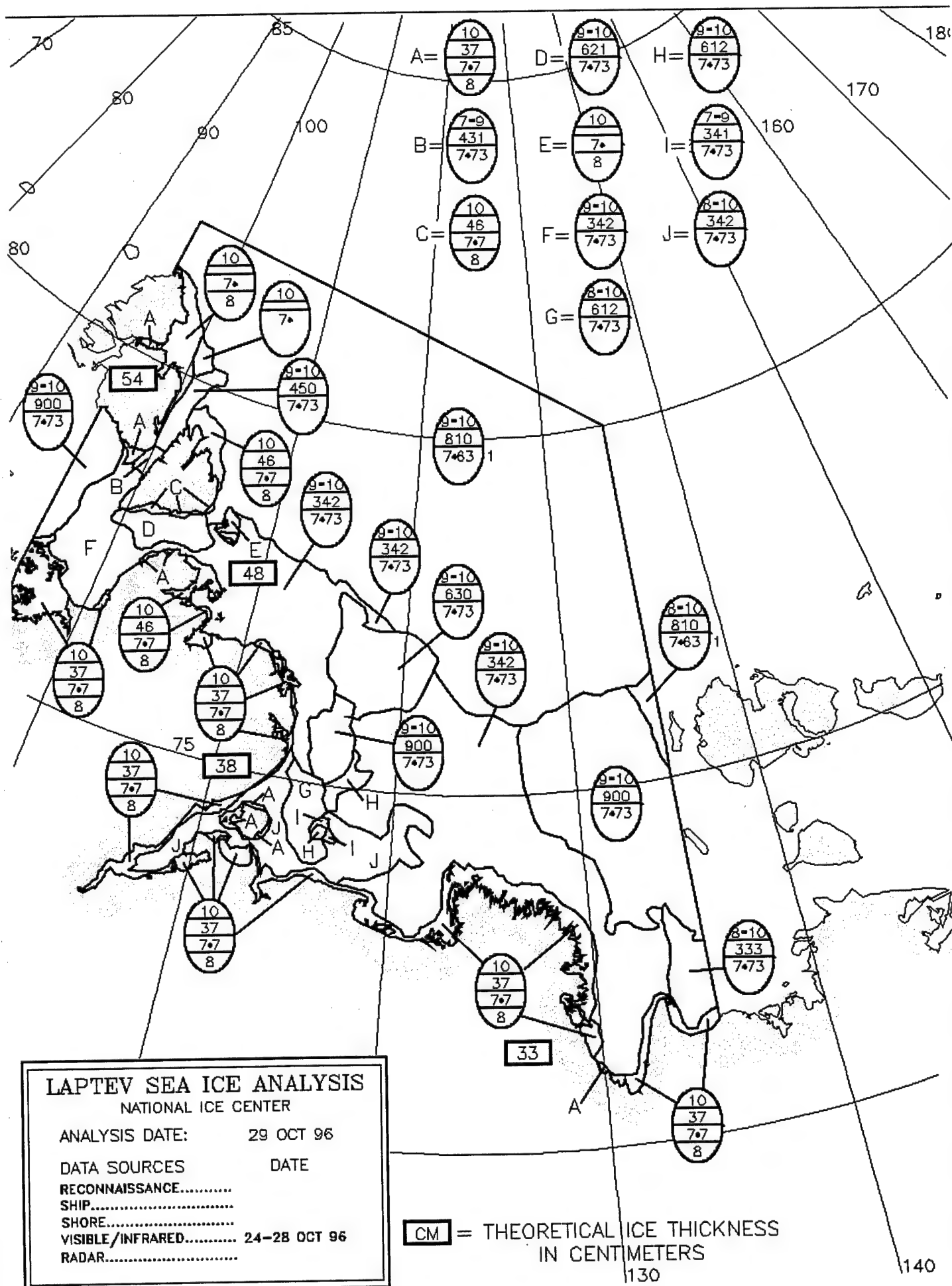
VISIBLE/INFRARED..... 21-23 SEP 96

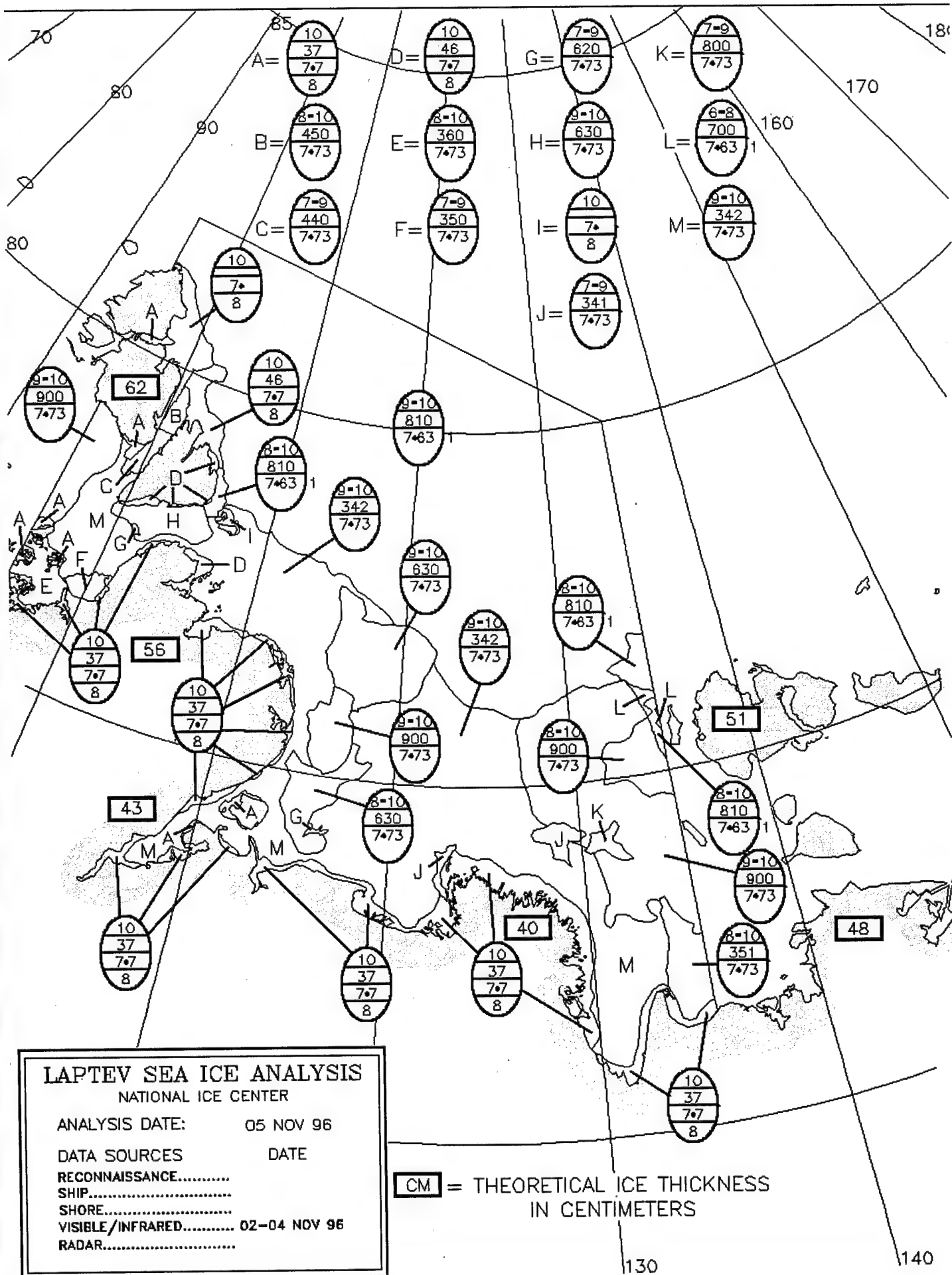
RADAR.....

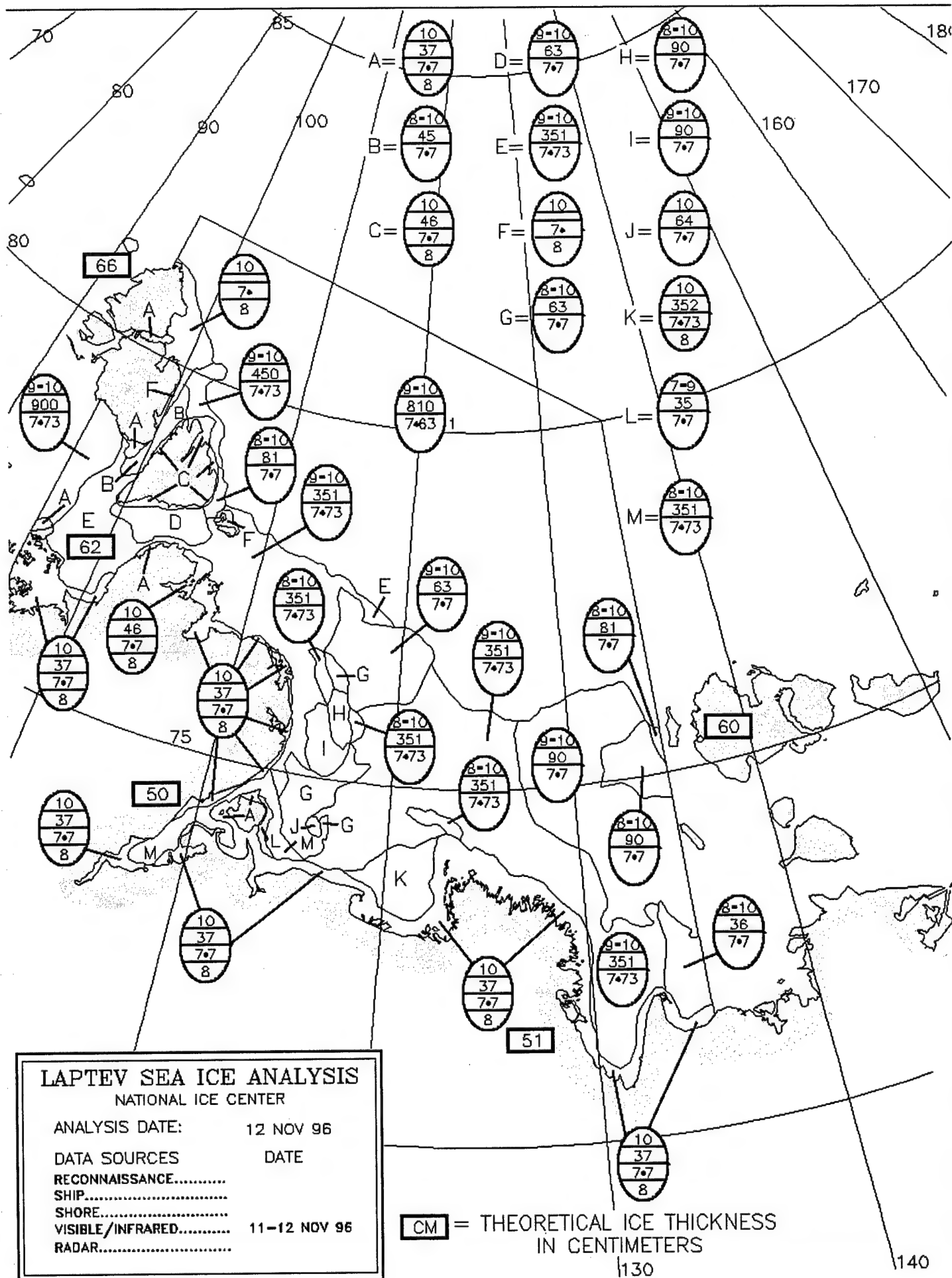


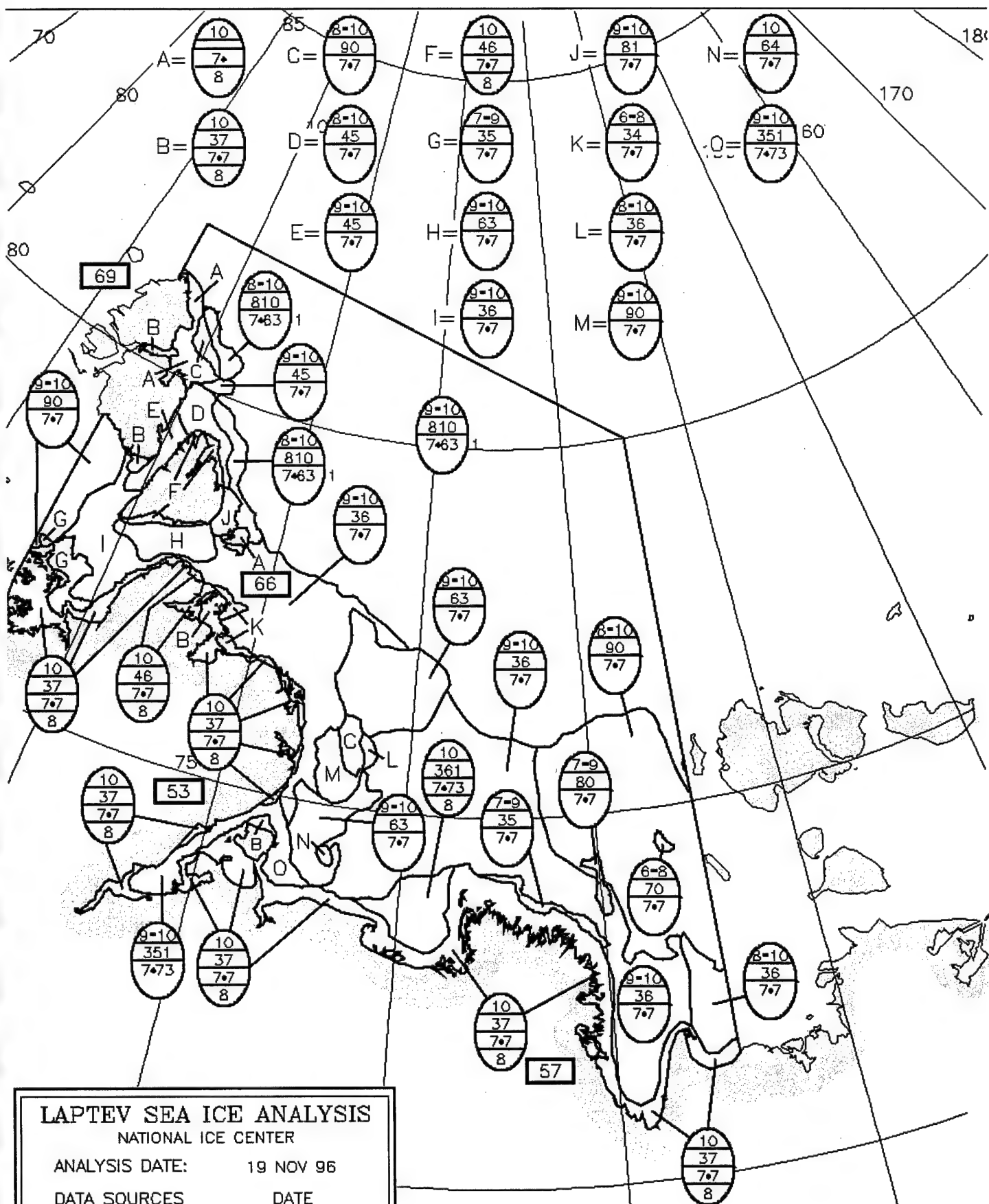












LAPTEV SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 19 NOV 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

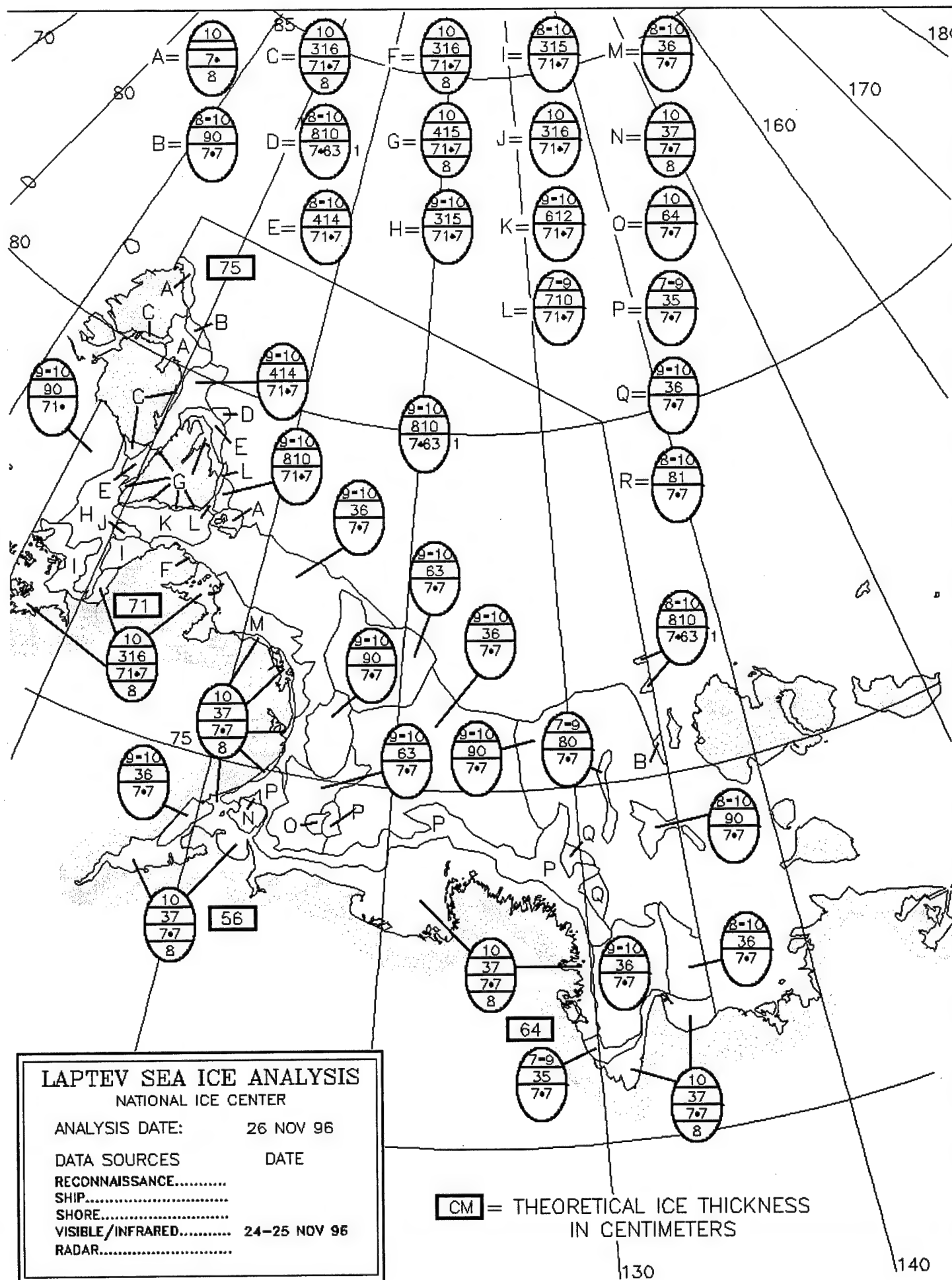
VISIBLE/INFRARED..... 15-18 NOV 96

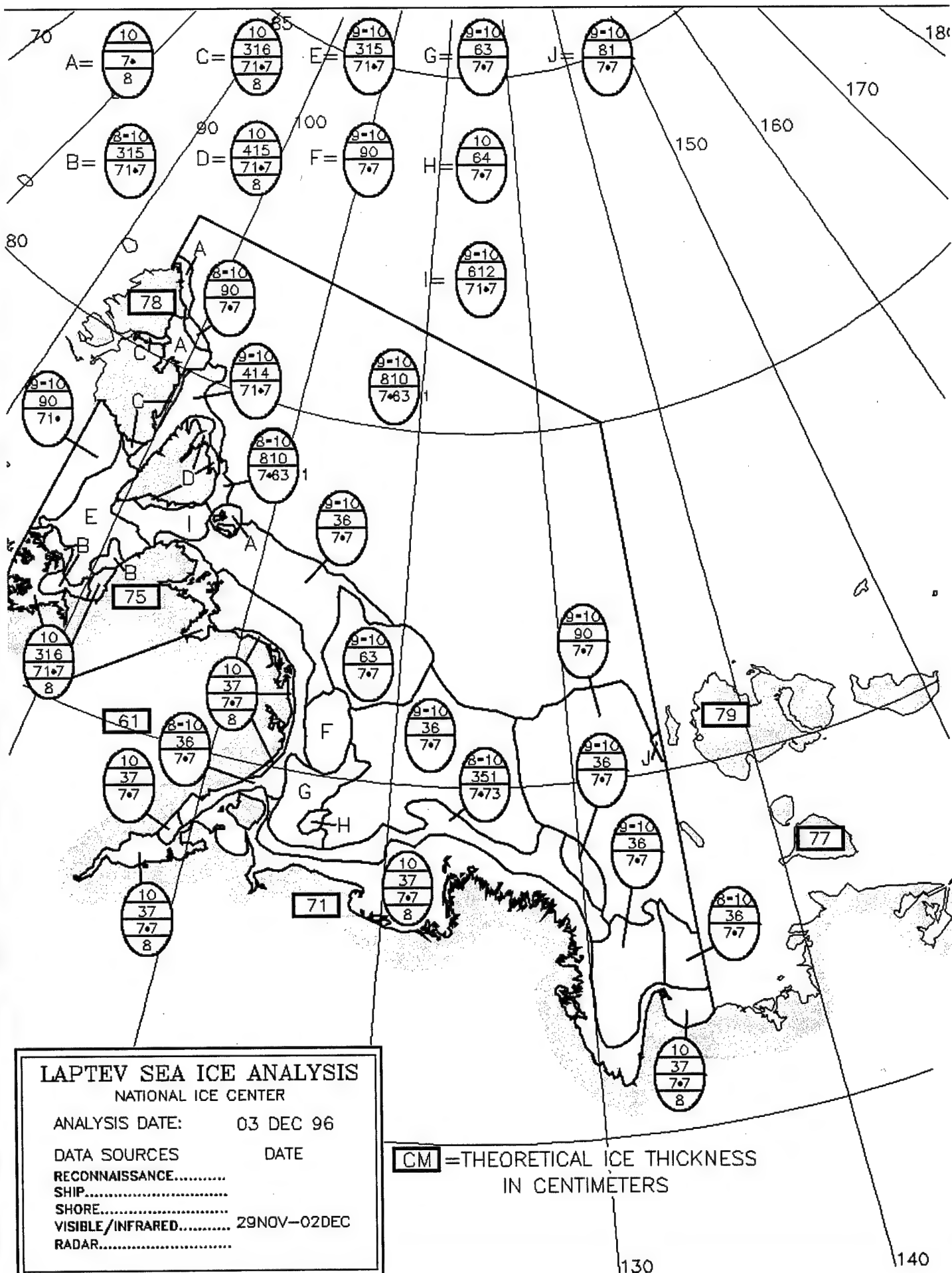
RADAR.....

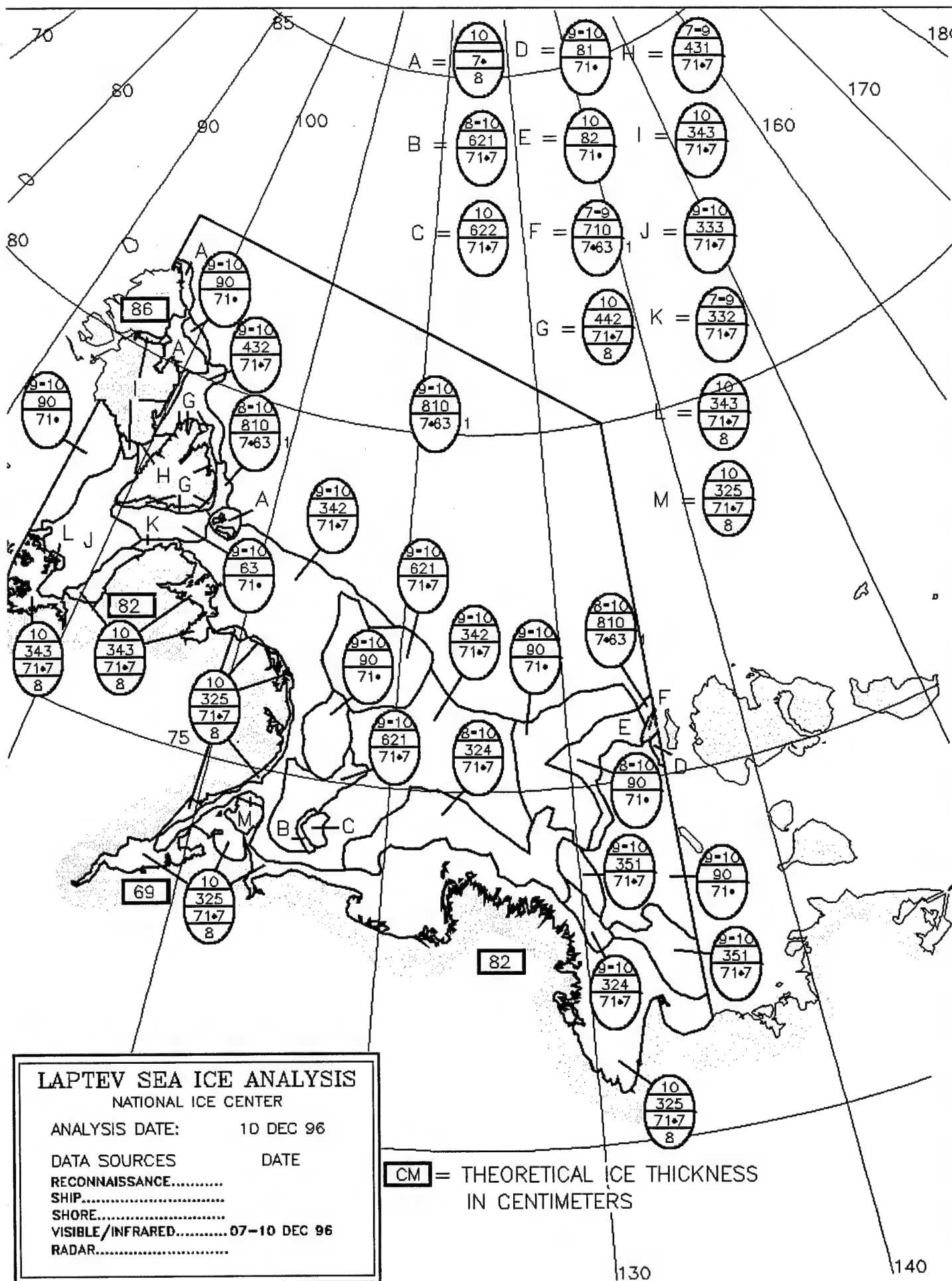
[CM] = THEORETICAL ICE THICKNESS
IN CENTIMETERS

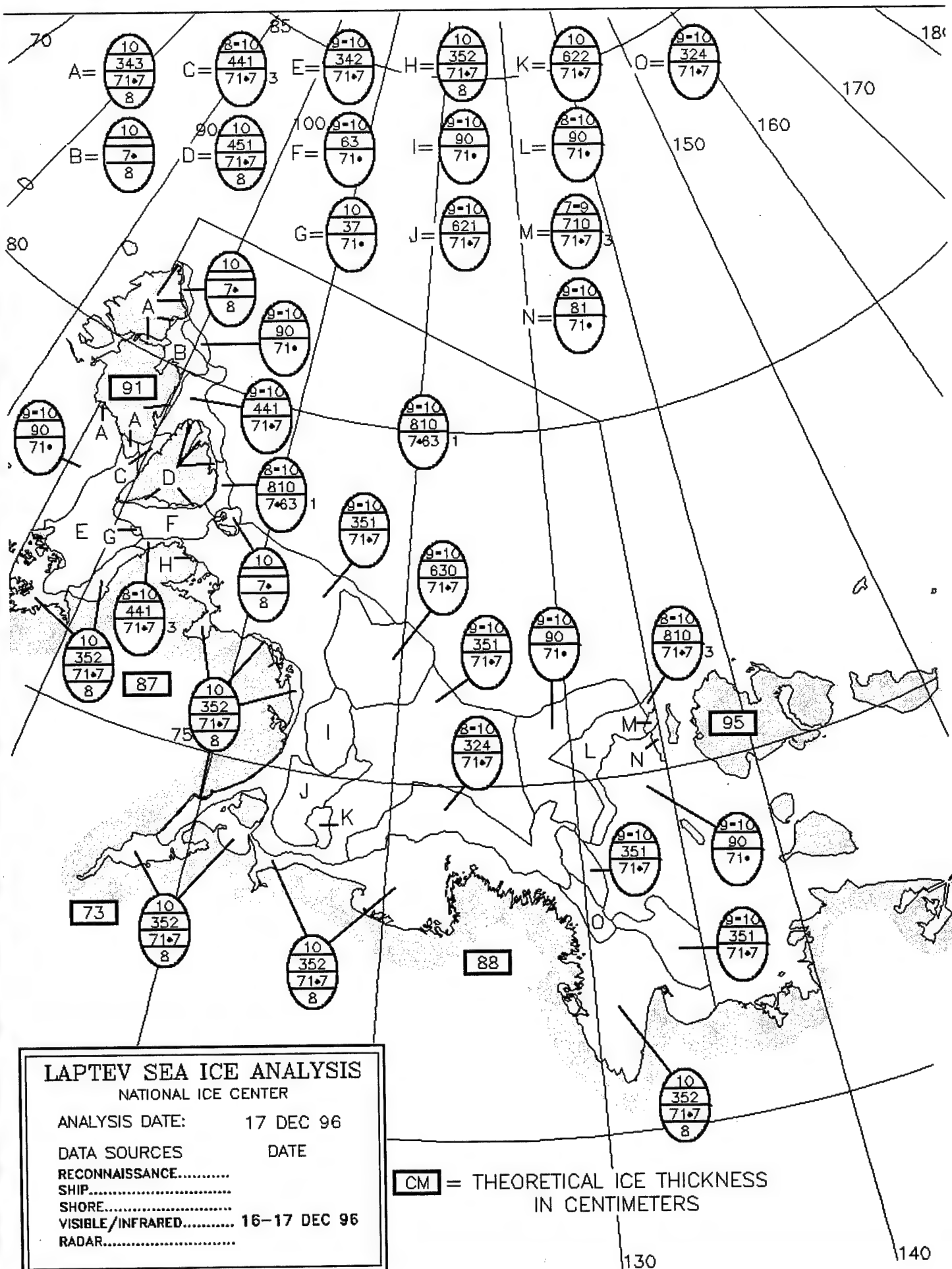
1130

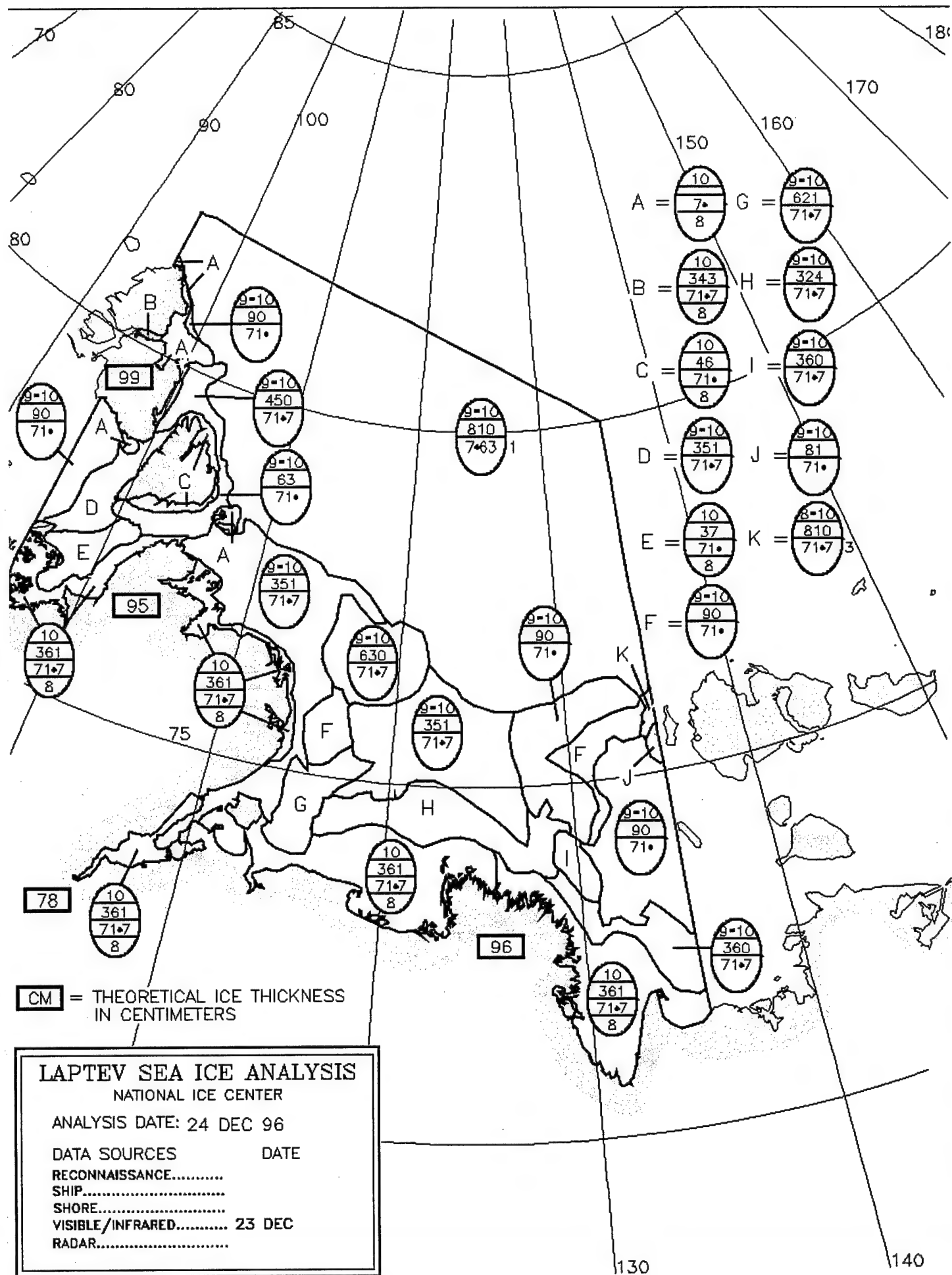
140

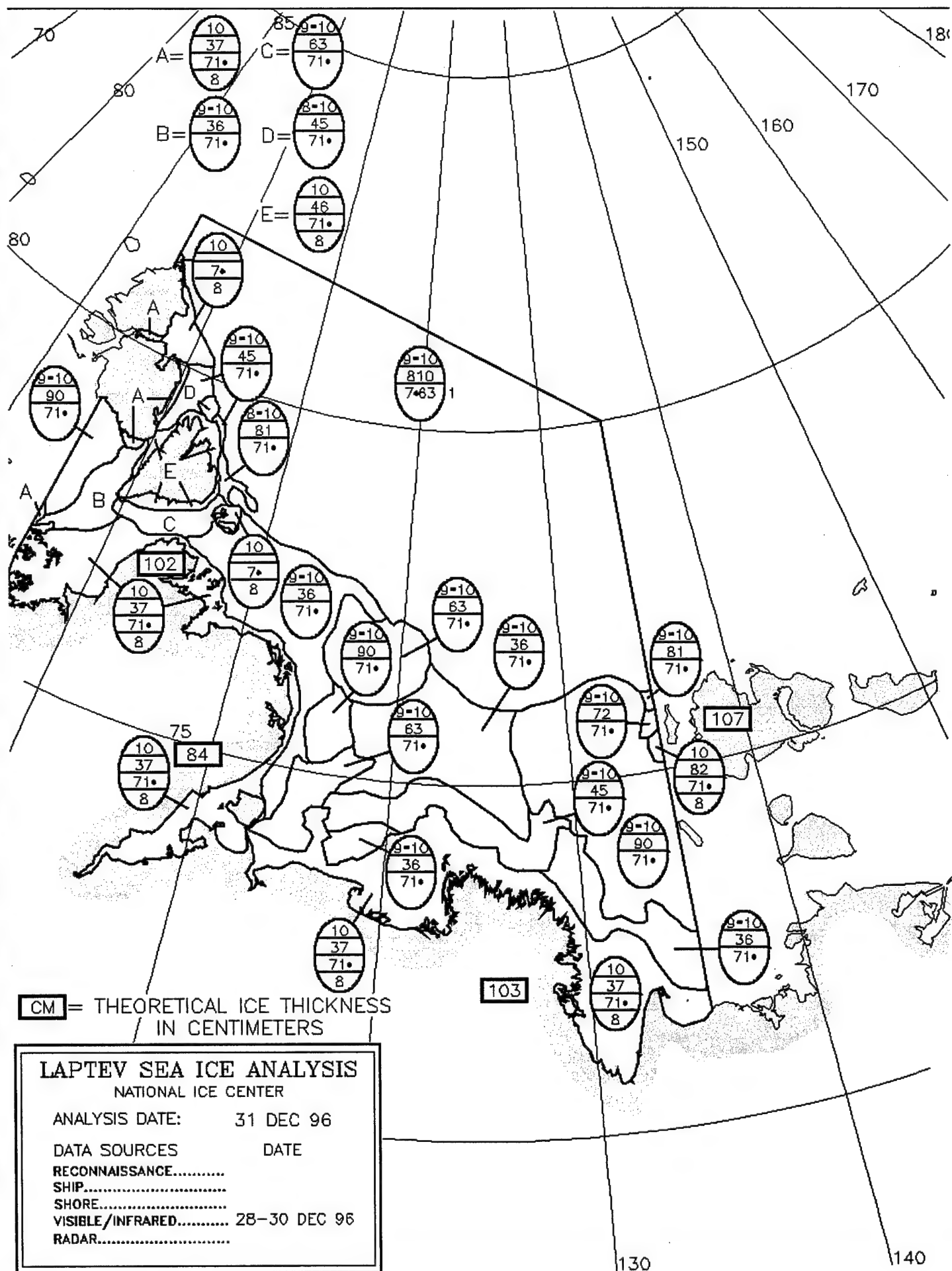


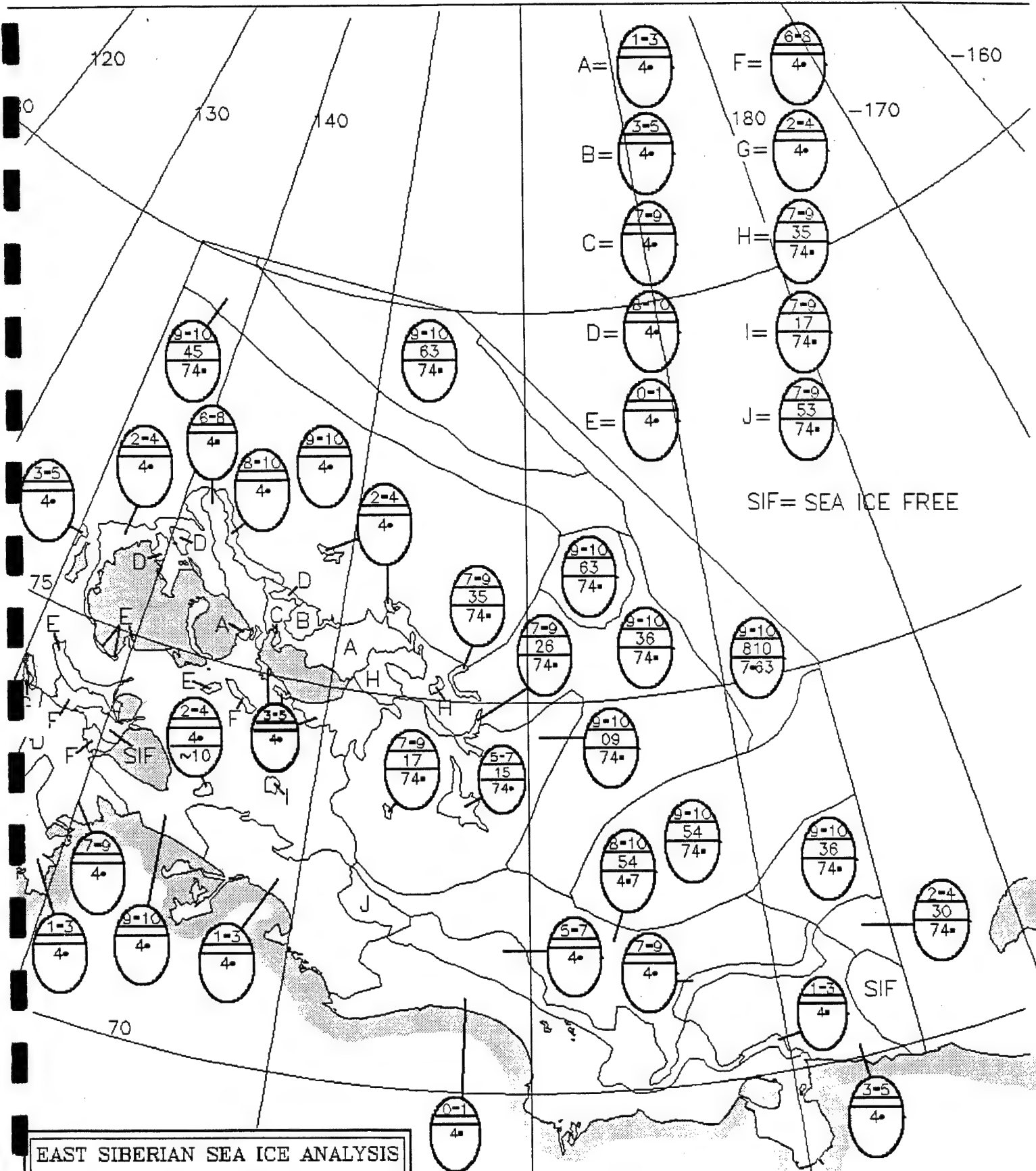












EAST SIBERIAN SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 27 AUG 96

DATA SOURCES	DATE
--------------	------

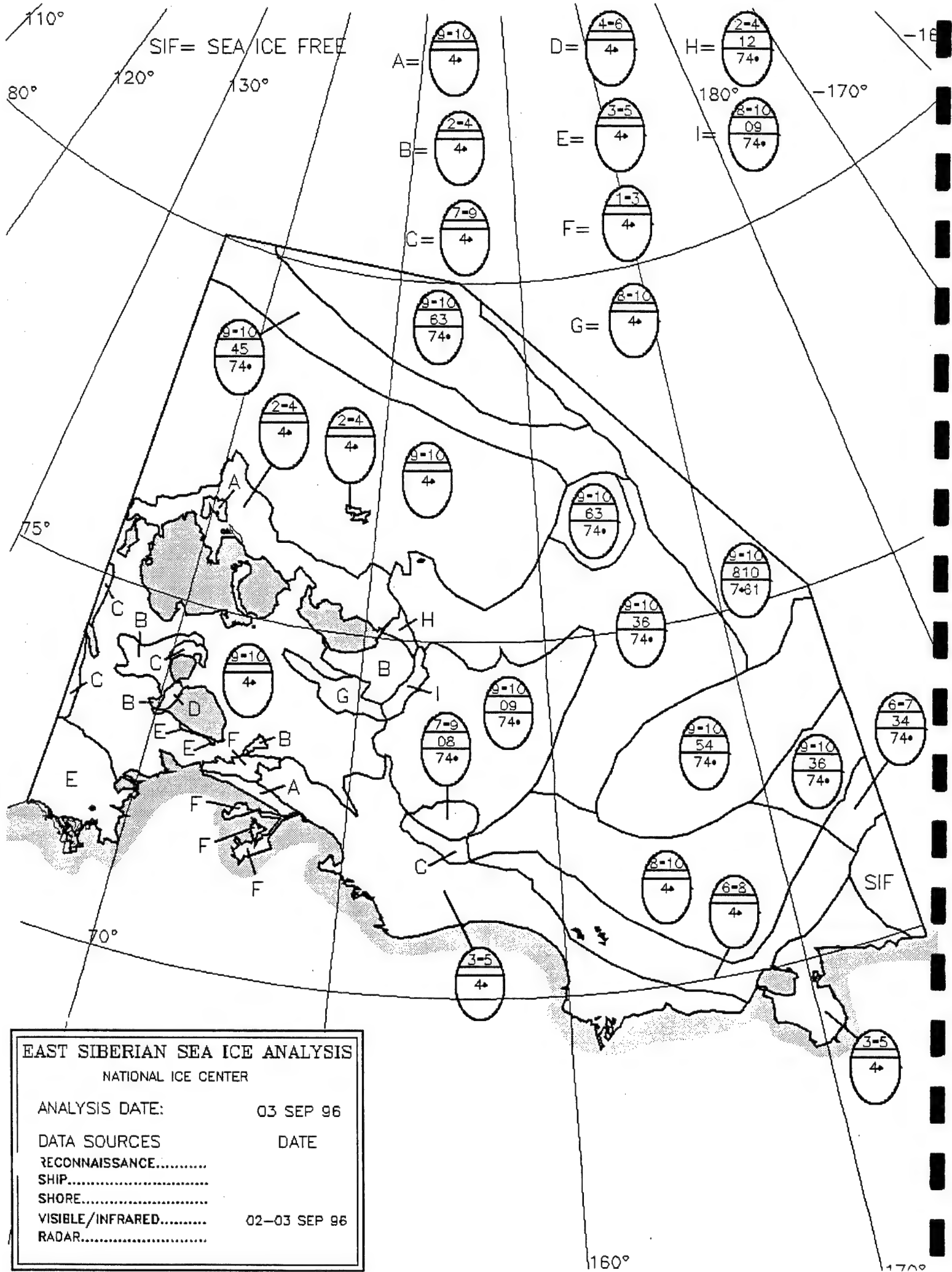
RECONNAISSANCE.....

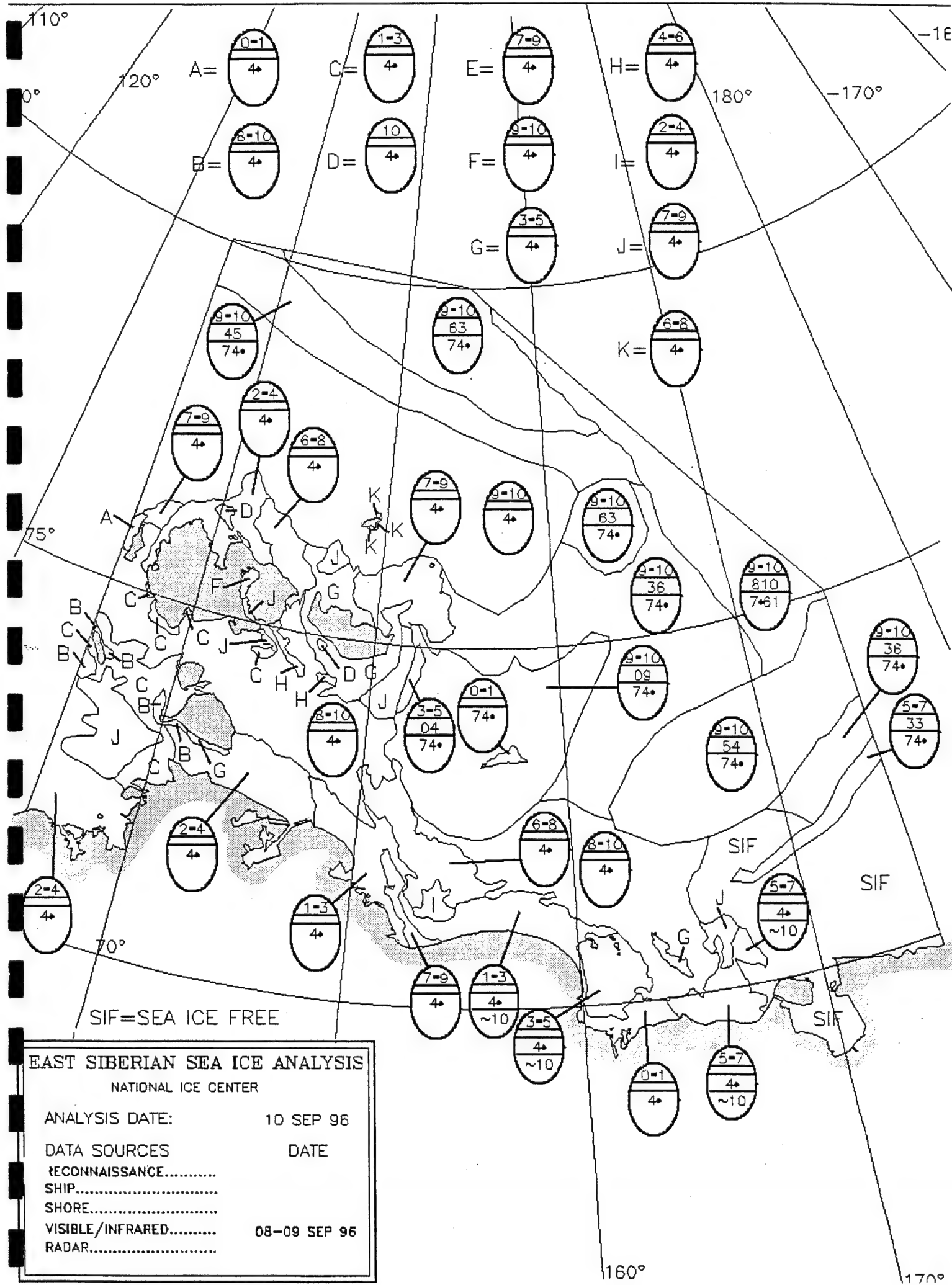
SHIP.....

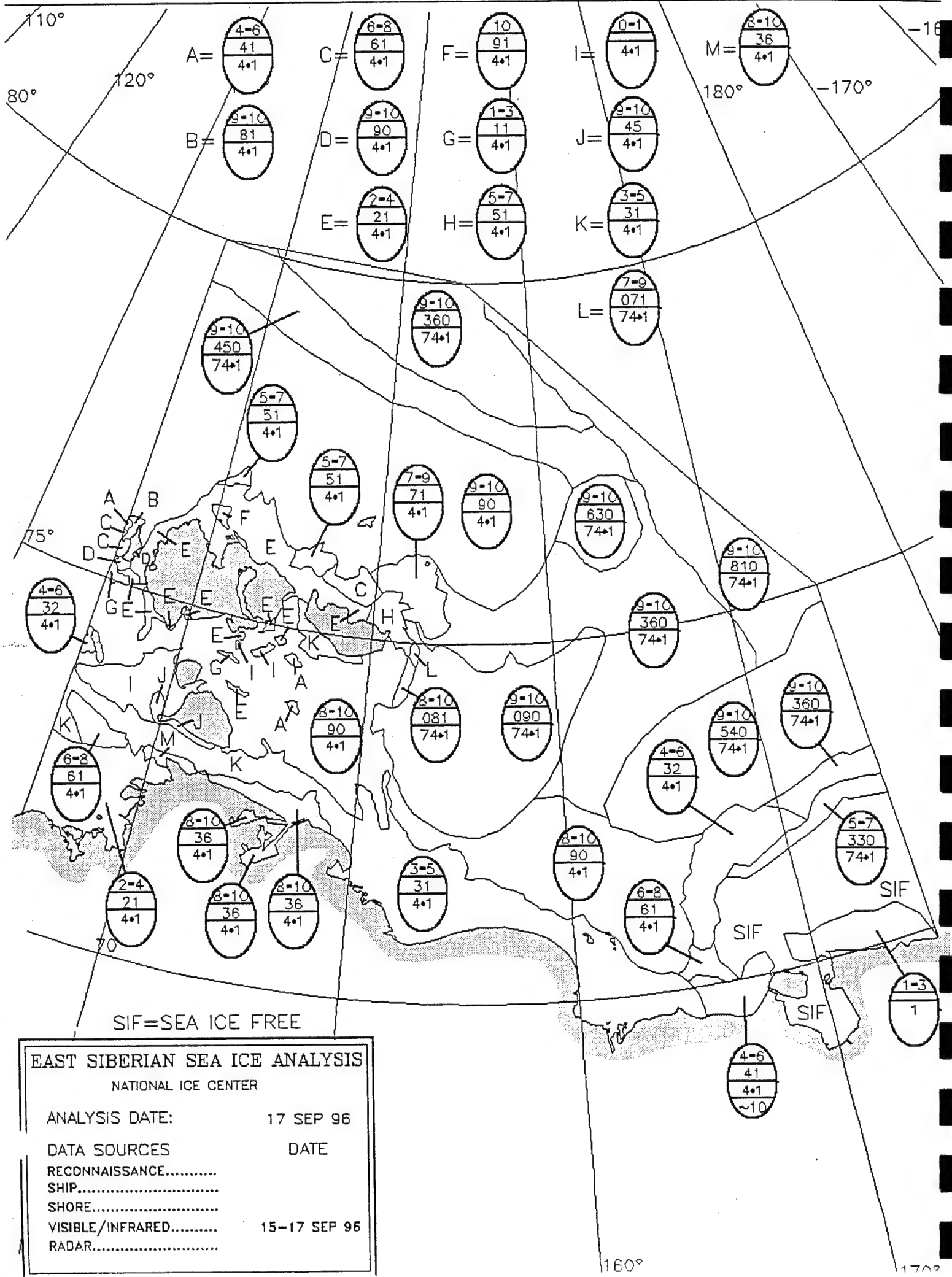
SHORE.....

VISIBLE/INFRARED..... 25-26 AUG 96

RADAR.....







SIF=SEA ICE FREE

EAST SIBERIAN SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 17 SEP 96

DATA SOURCES DATE

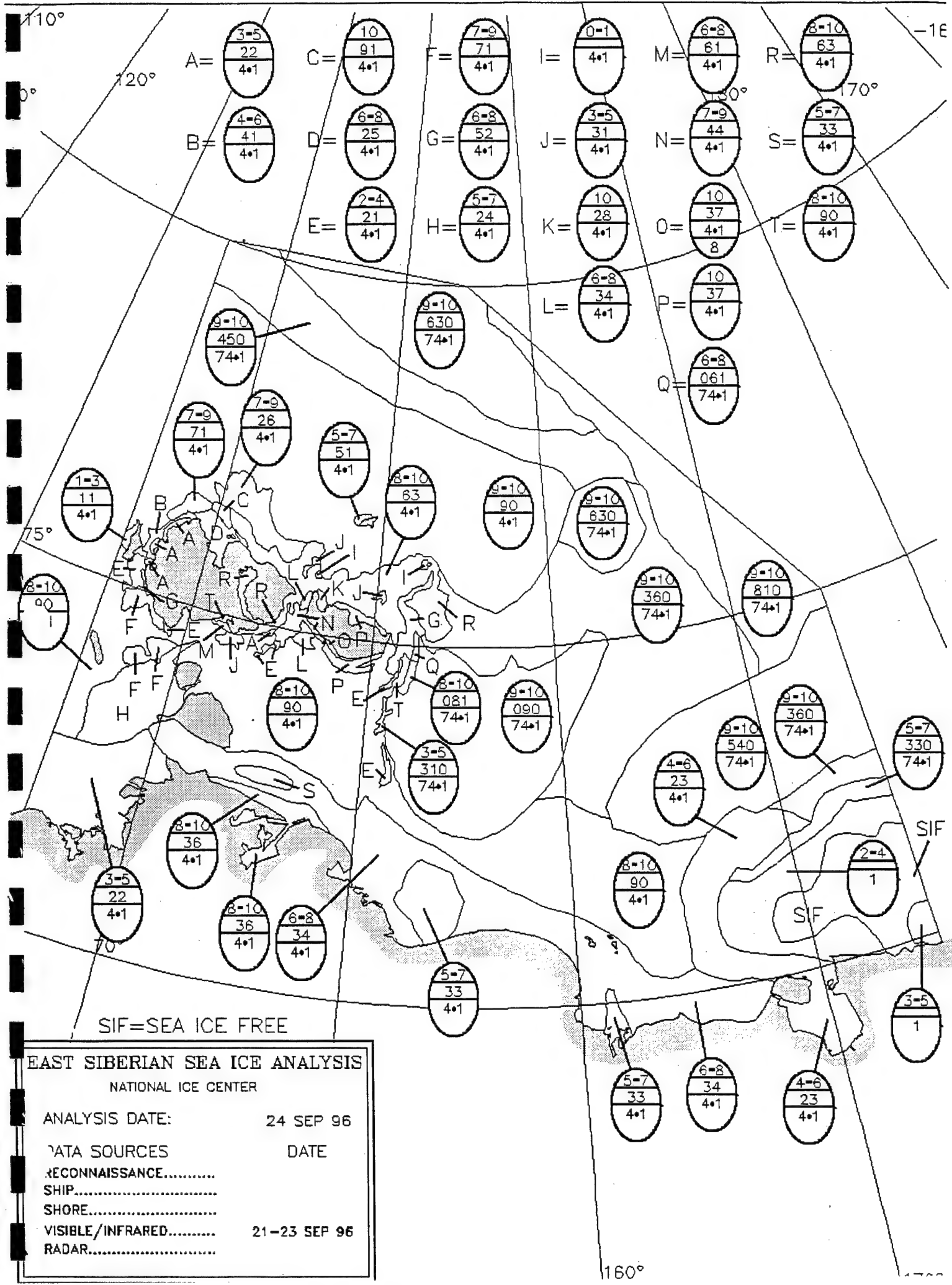
RECONNAISSANCE.....

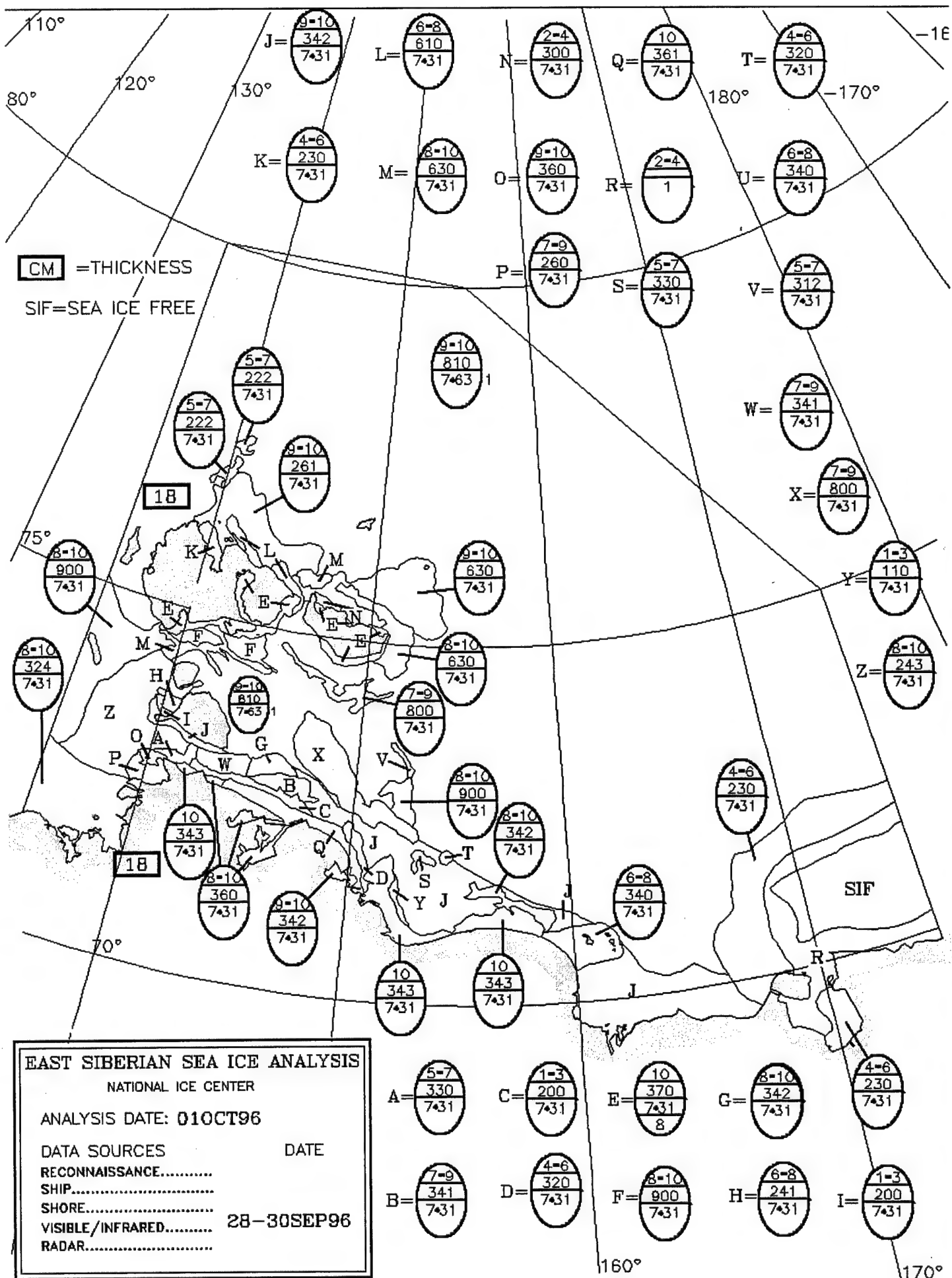
SHIP.....

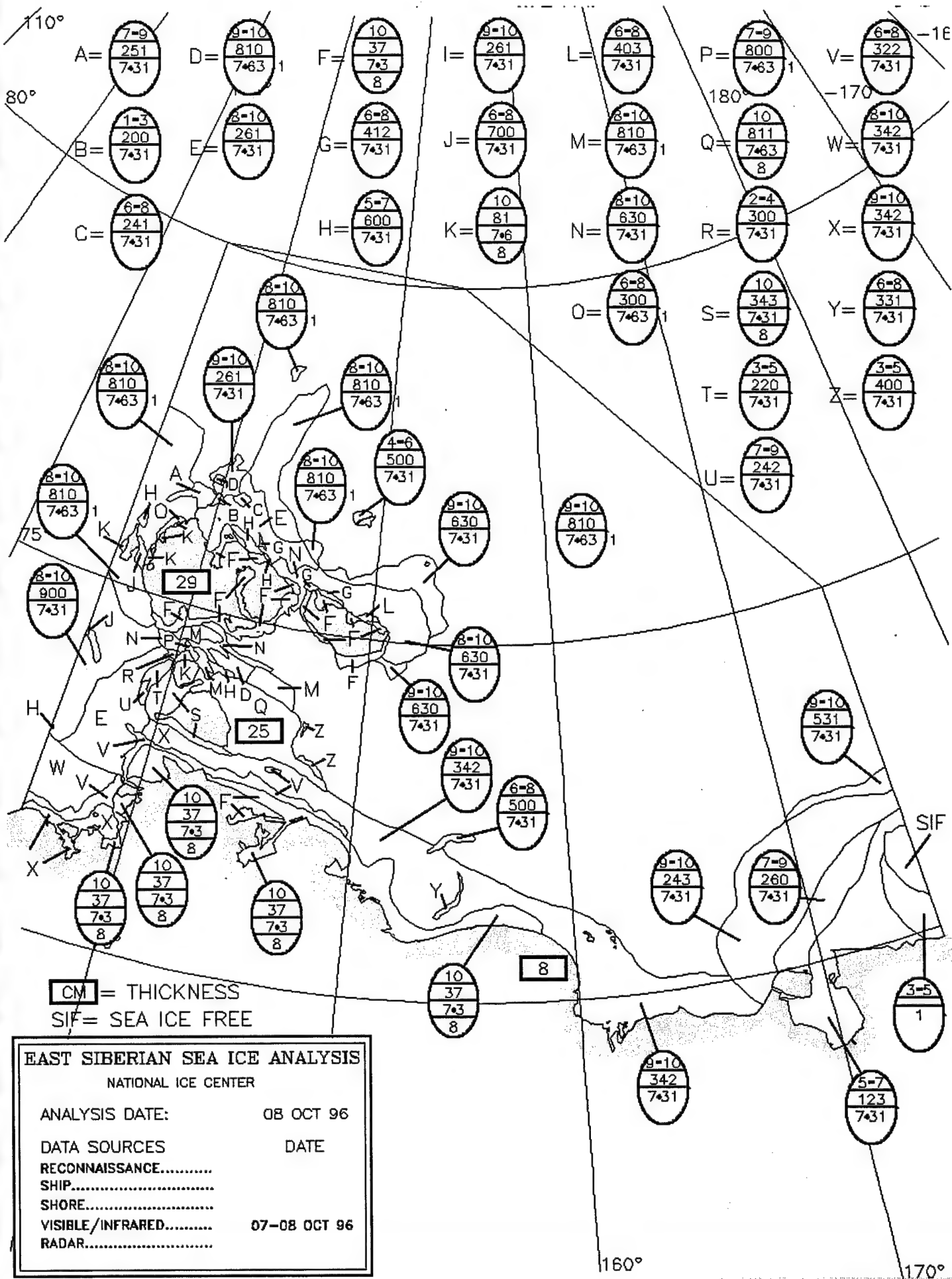
SHORE.....

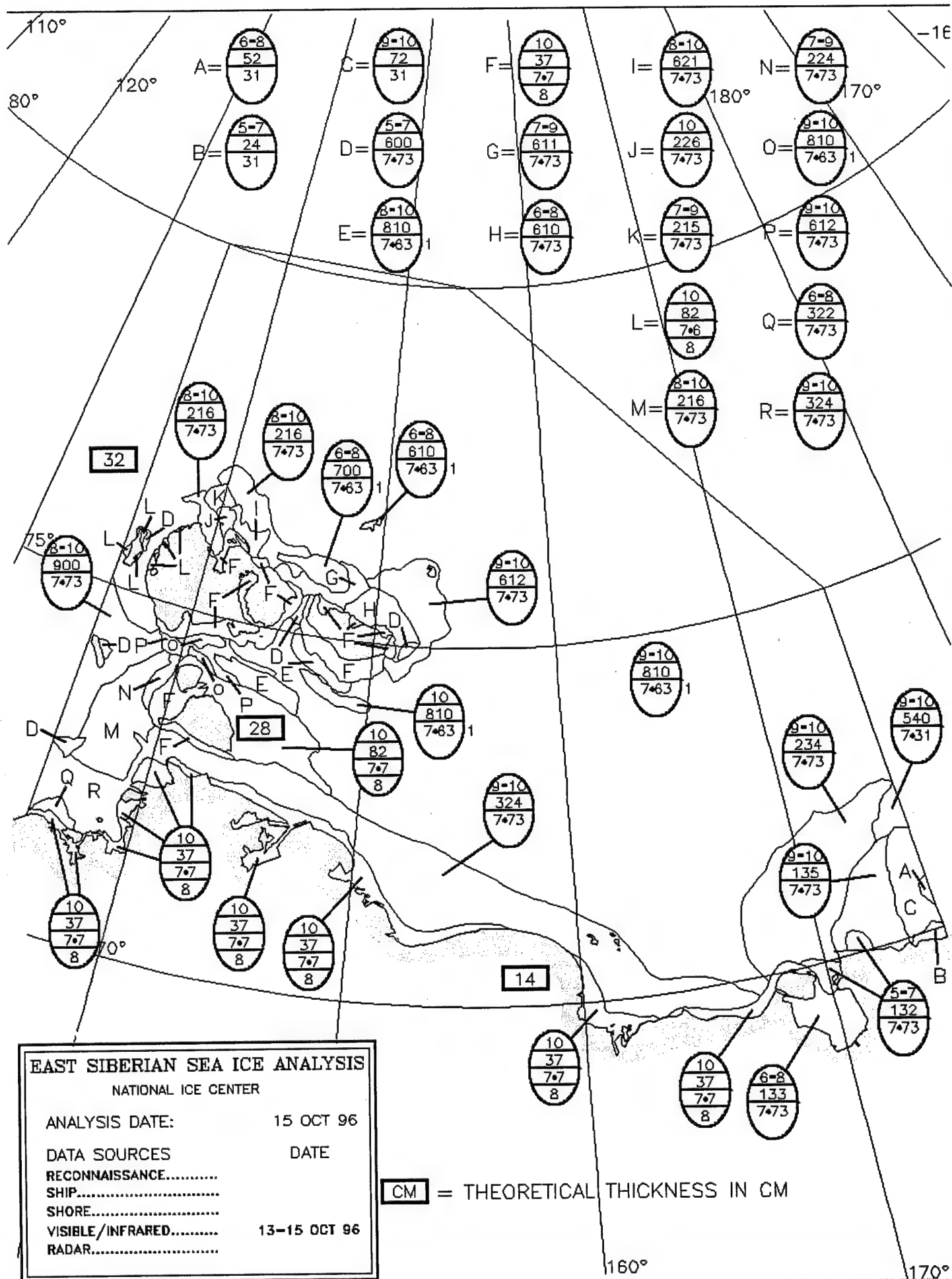
VISIBLE/INFRARED..... 15-17 SEP 96

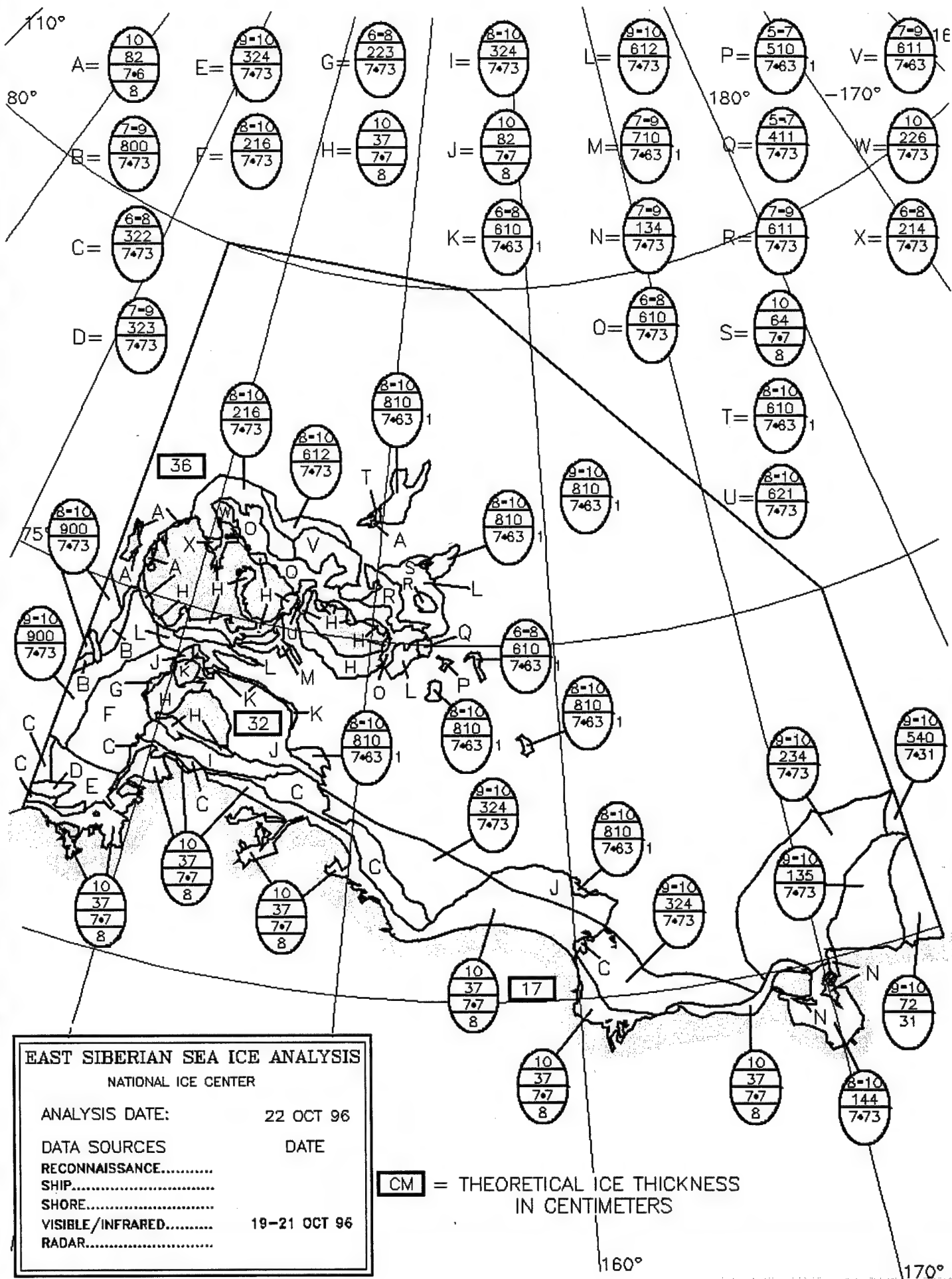
RADAR.....

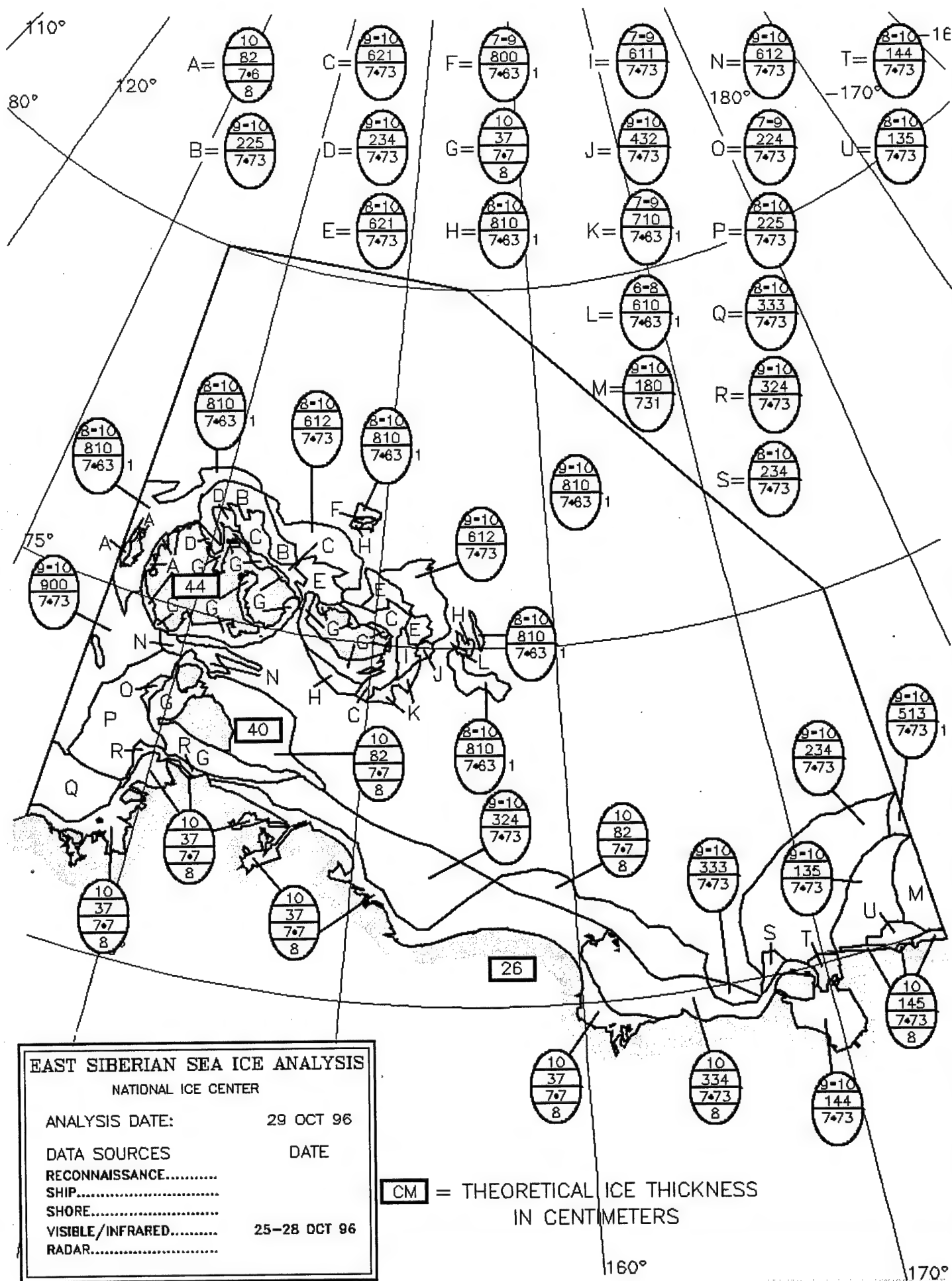


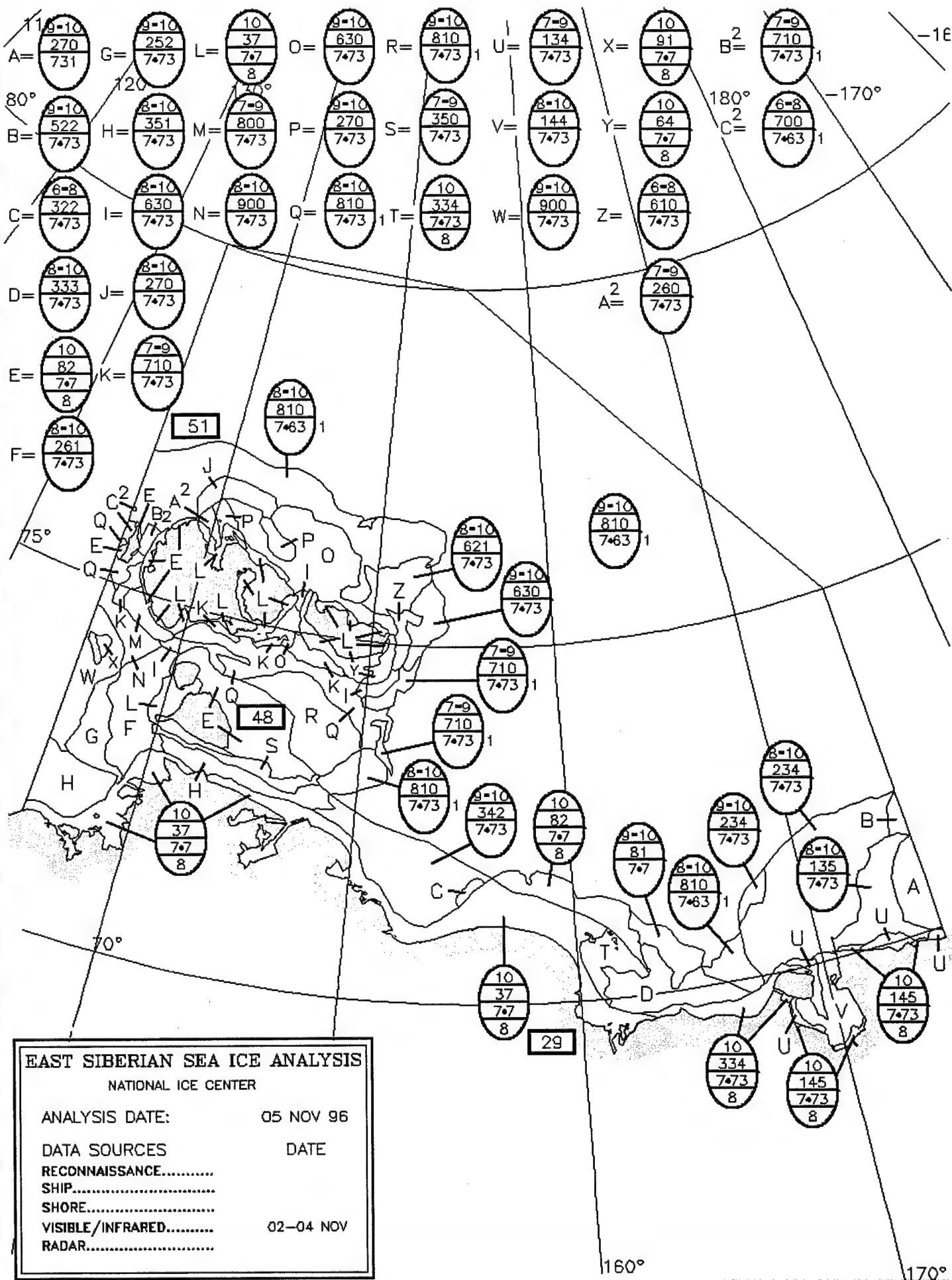


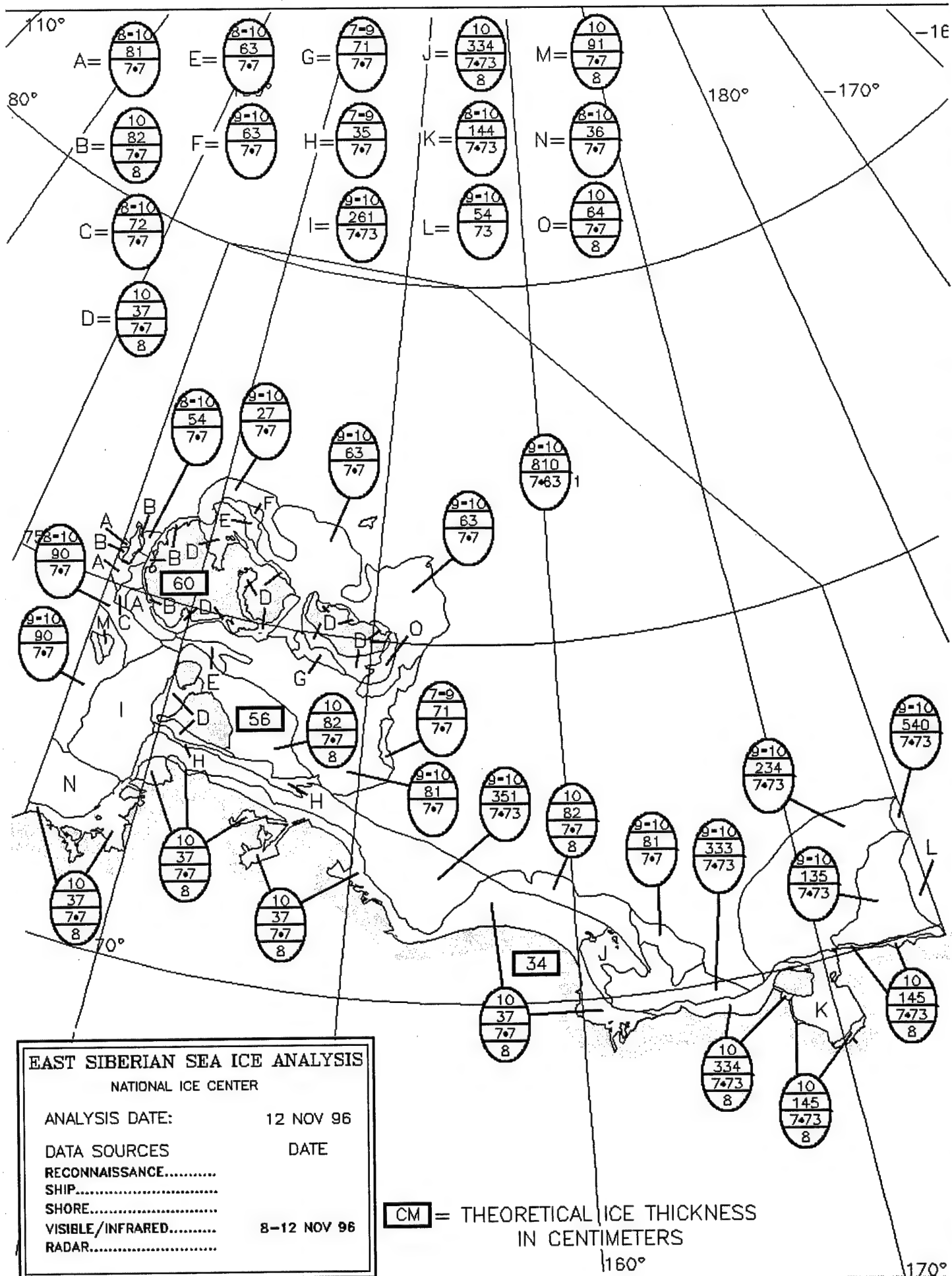


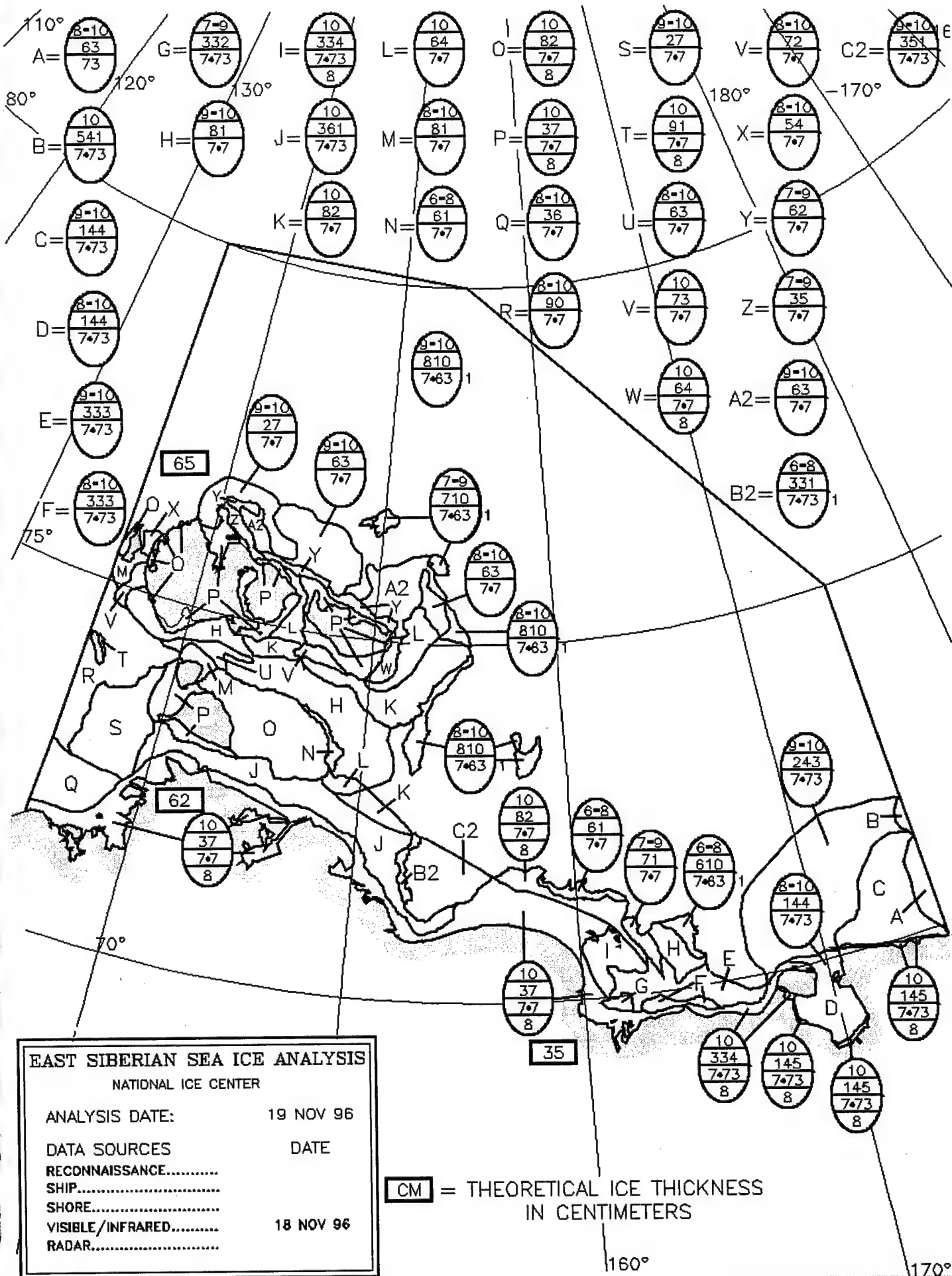


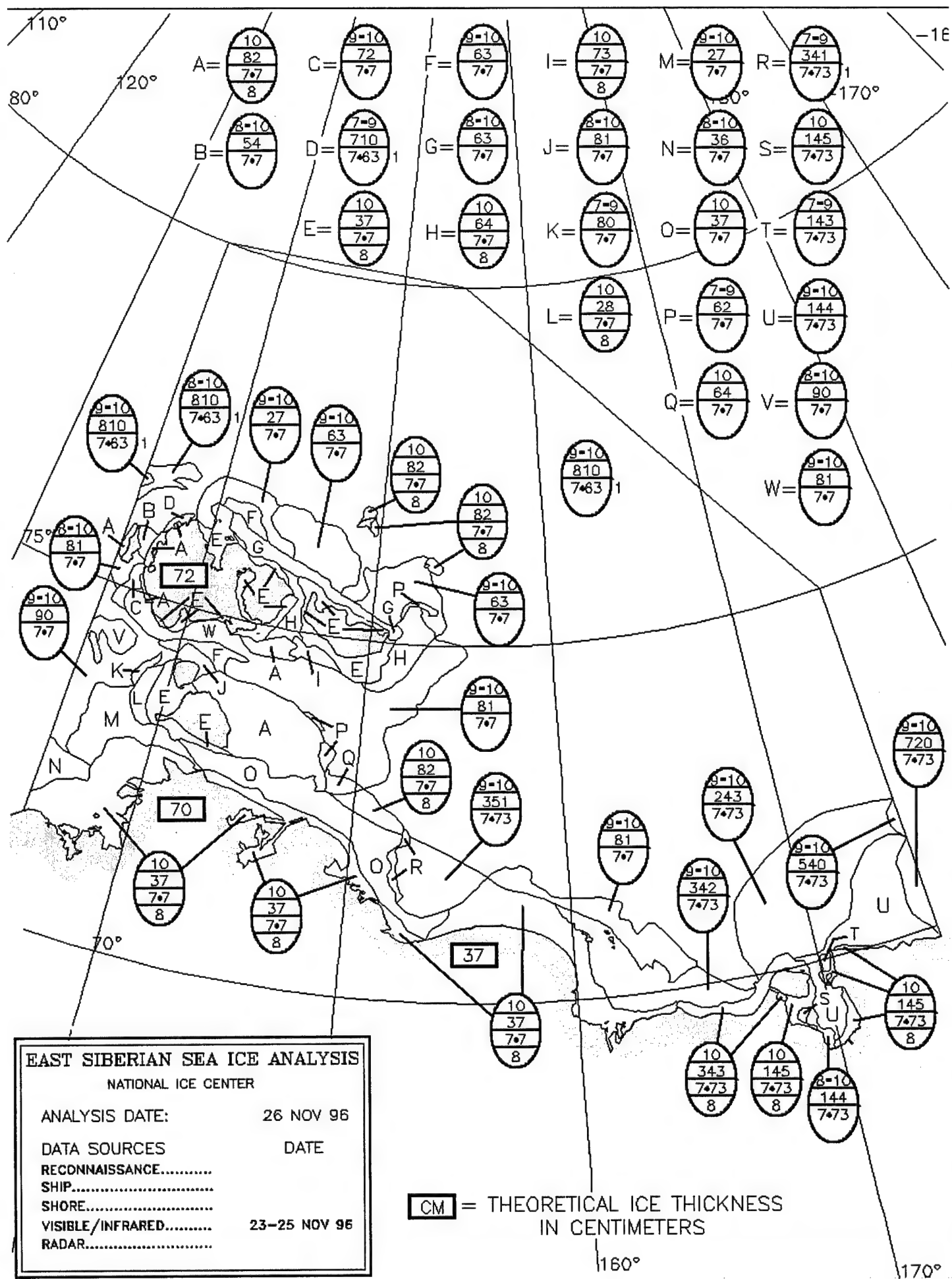


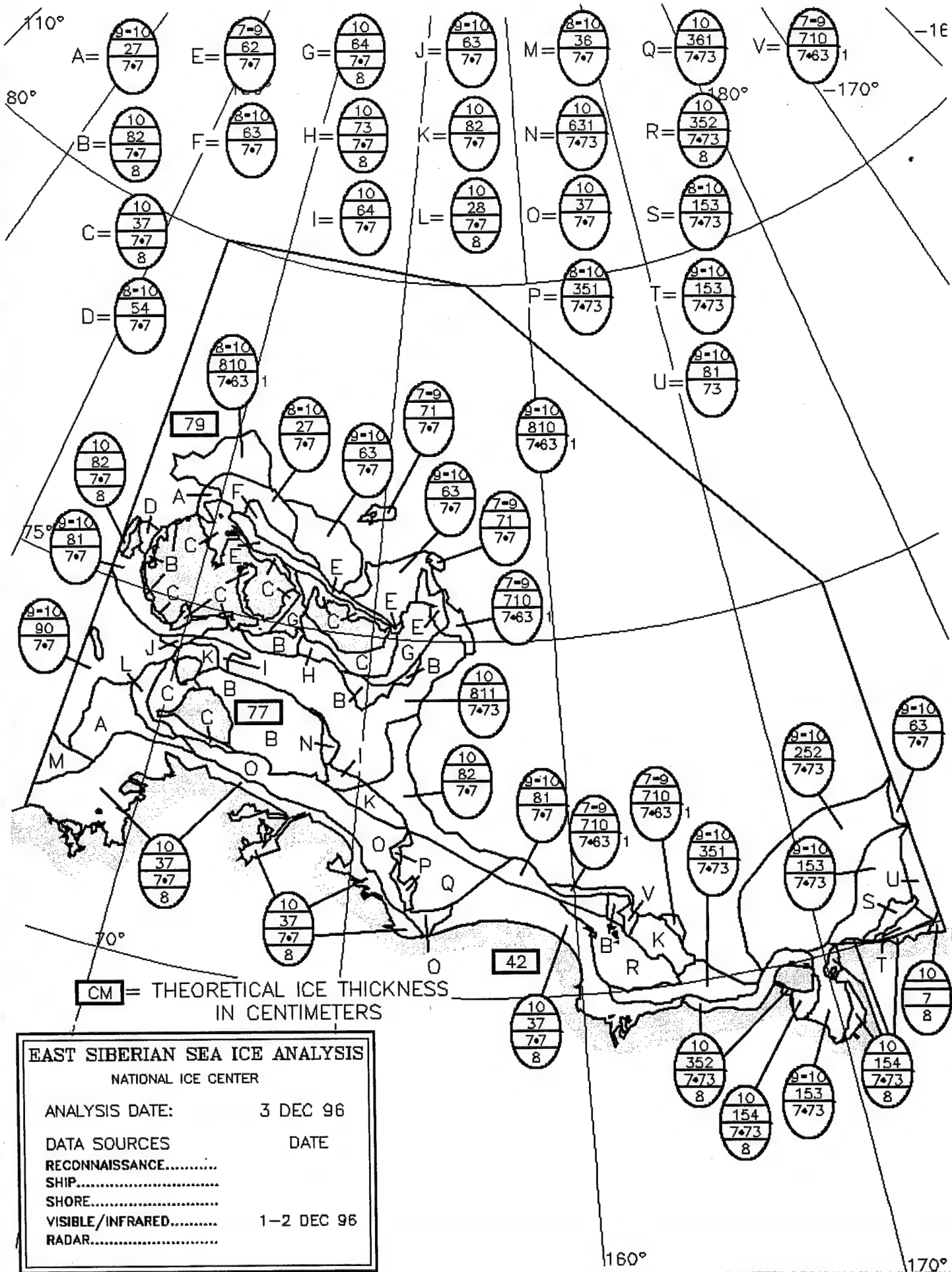


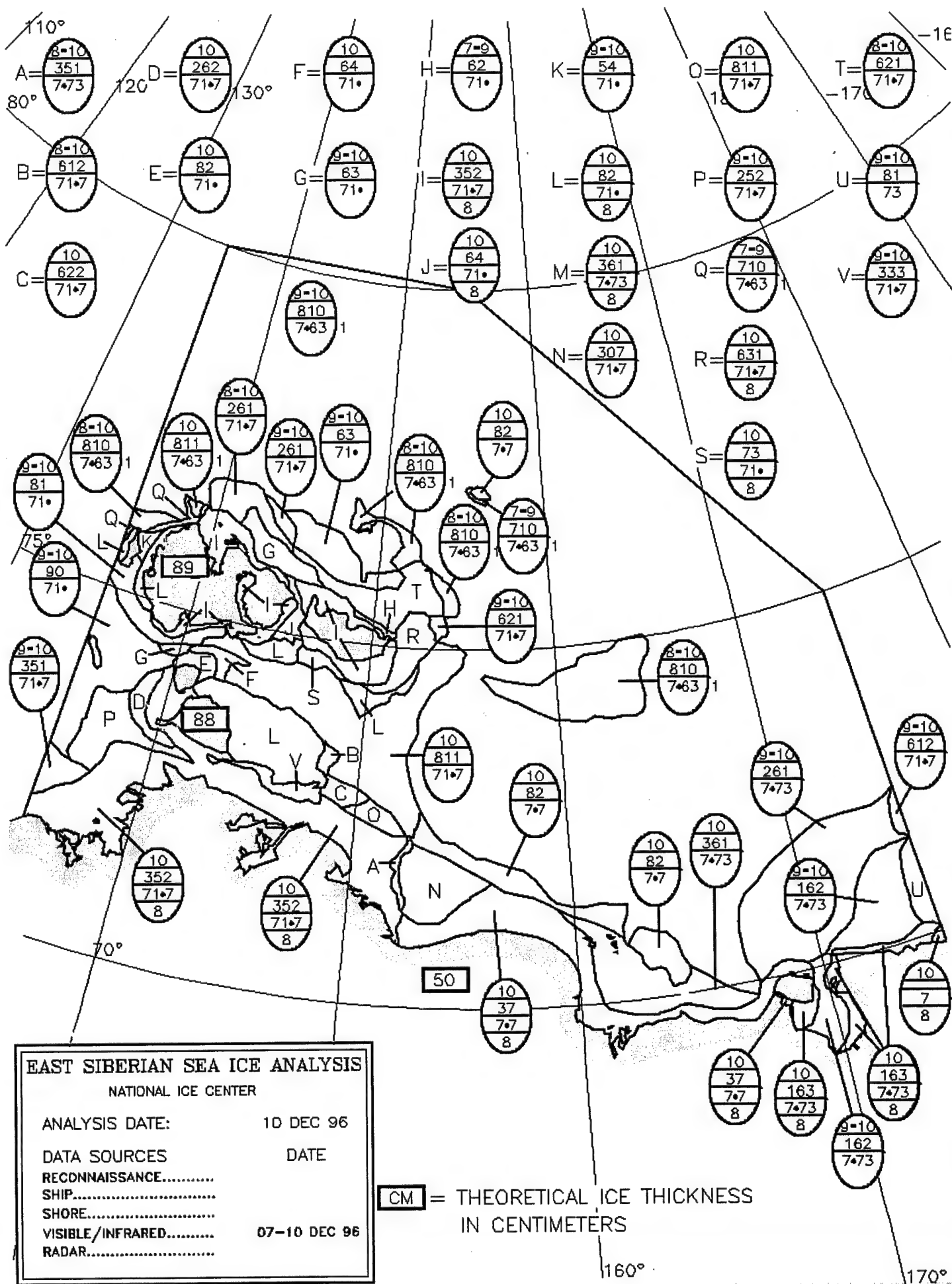


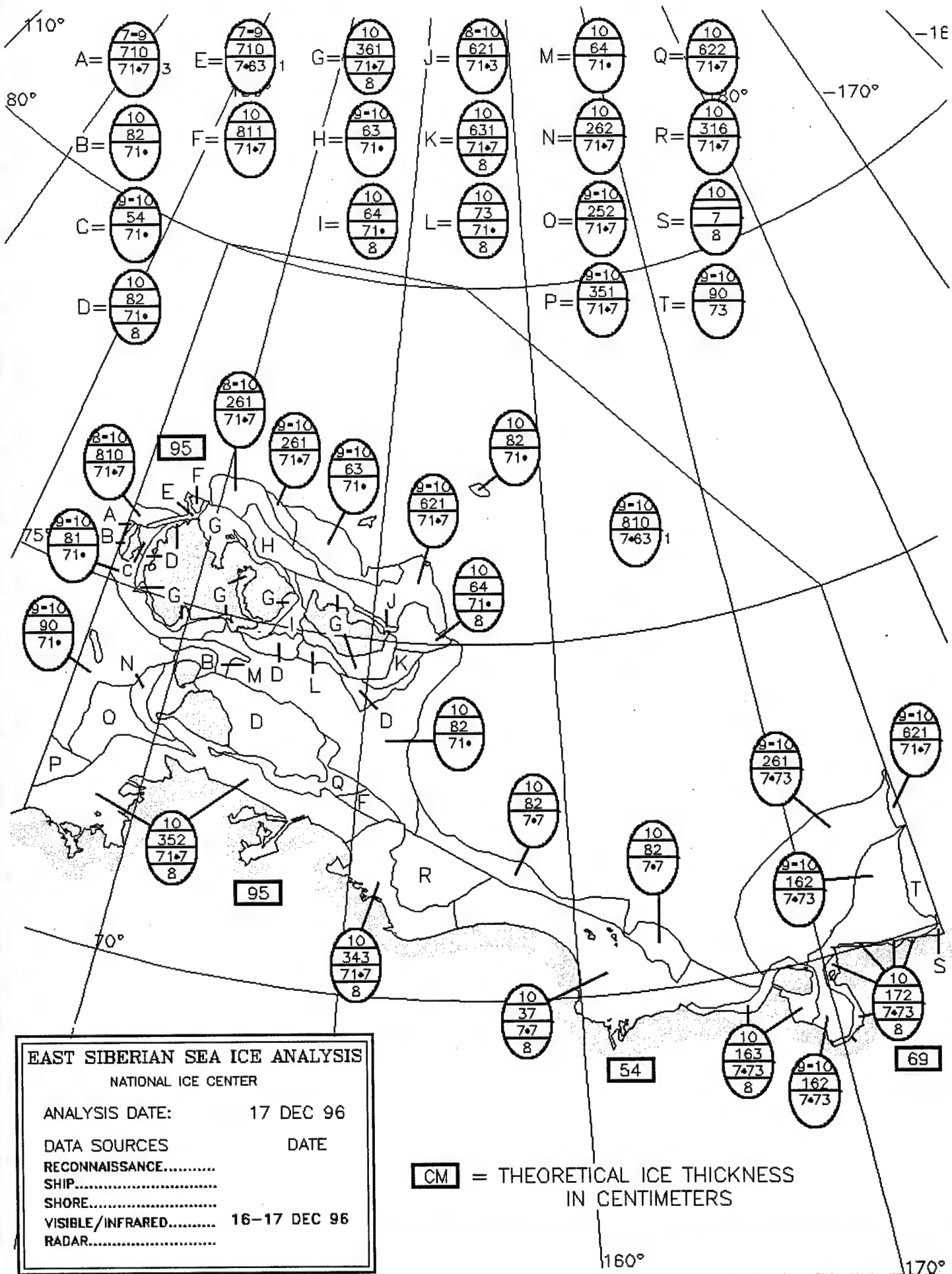


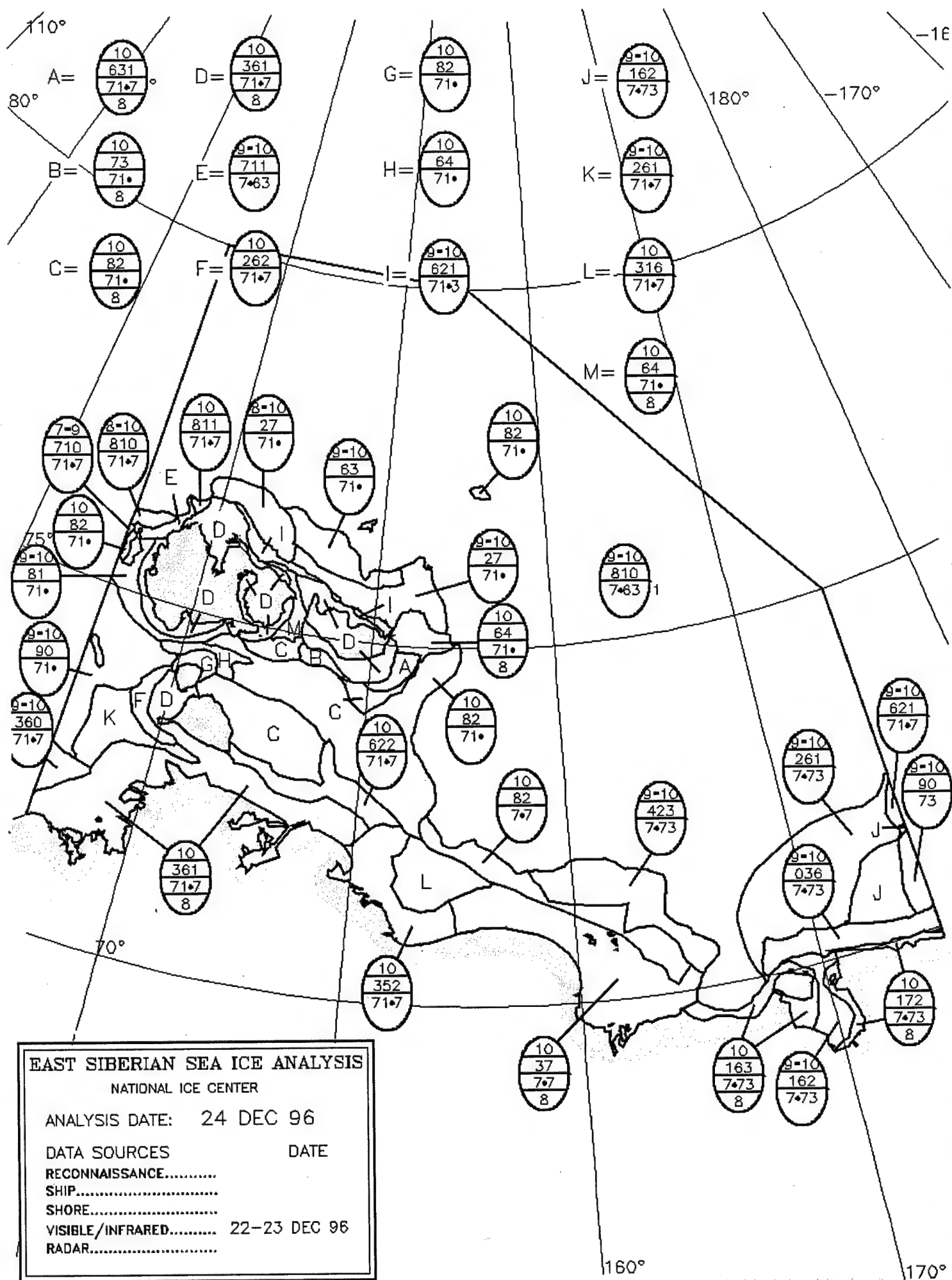


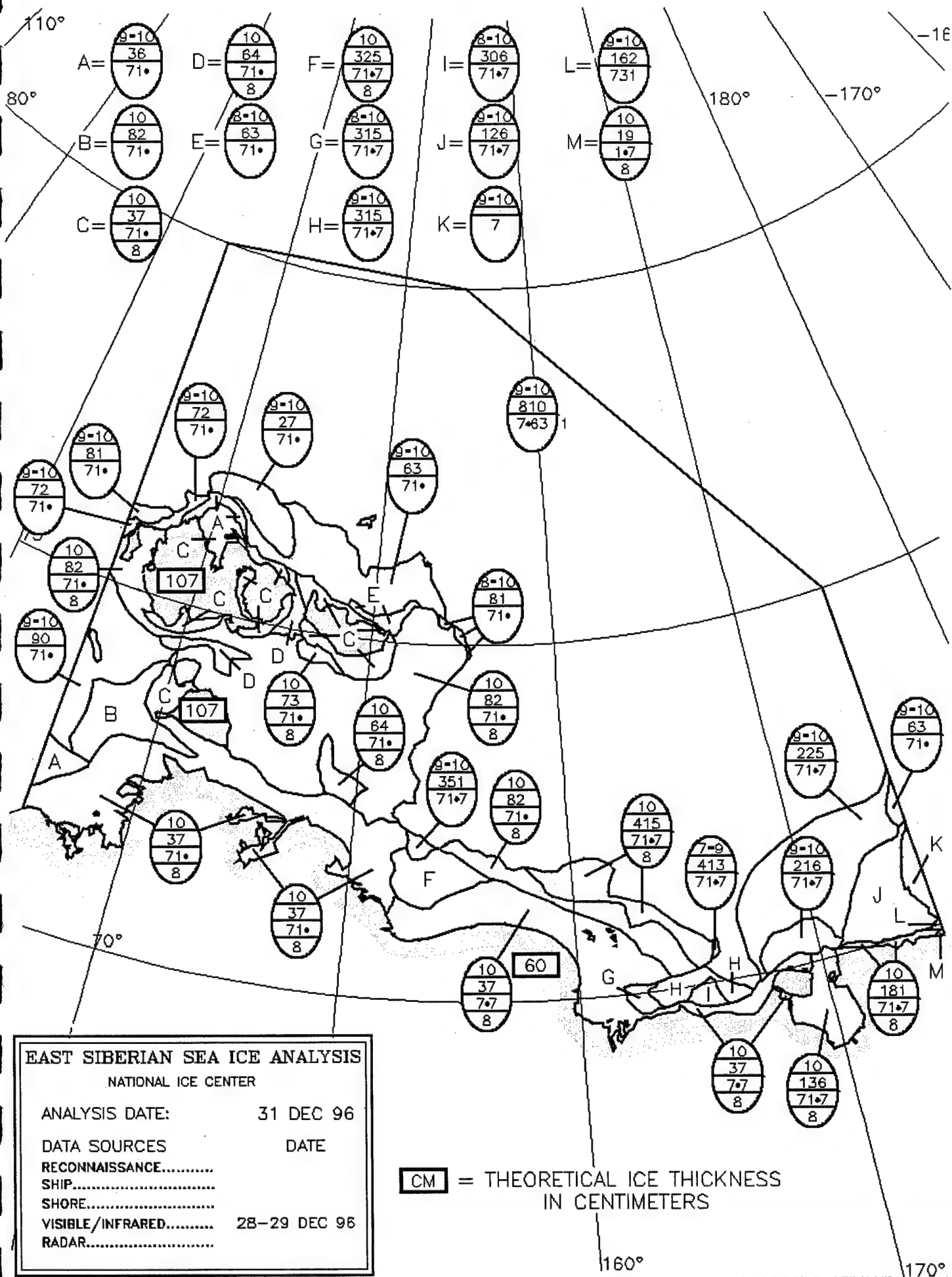












SEA OF OKHOTSK WEST ICE ANALYSIS
NATIONAL ICE CENTER

ANALYSIS DATE: 29 OCT 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED.....

RADAR.....

SEA ICE FREE

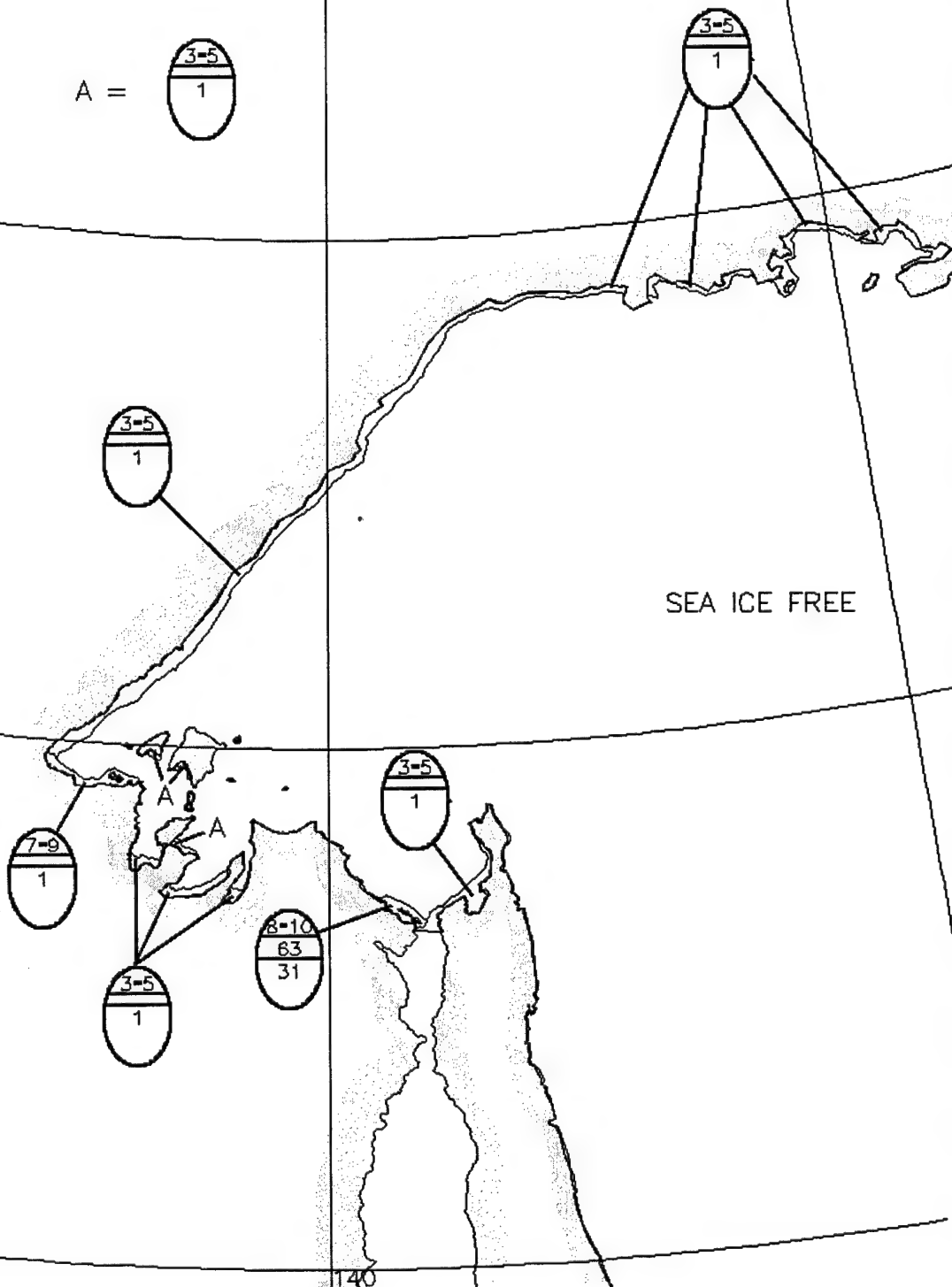
SEA OF OKHOTSK WEST ICE ANALYSIS NATIONAL ICE CENTER

ANALYSIS DATE: 05 NOV 96
 DATA SOURCES DATE
 RECONNAISSANCE.....
 SHIP.....
 SHORE.....
 VISIBLE/INFRARED..... 05 NOV 96
 RADAR.....

A =



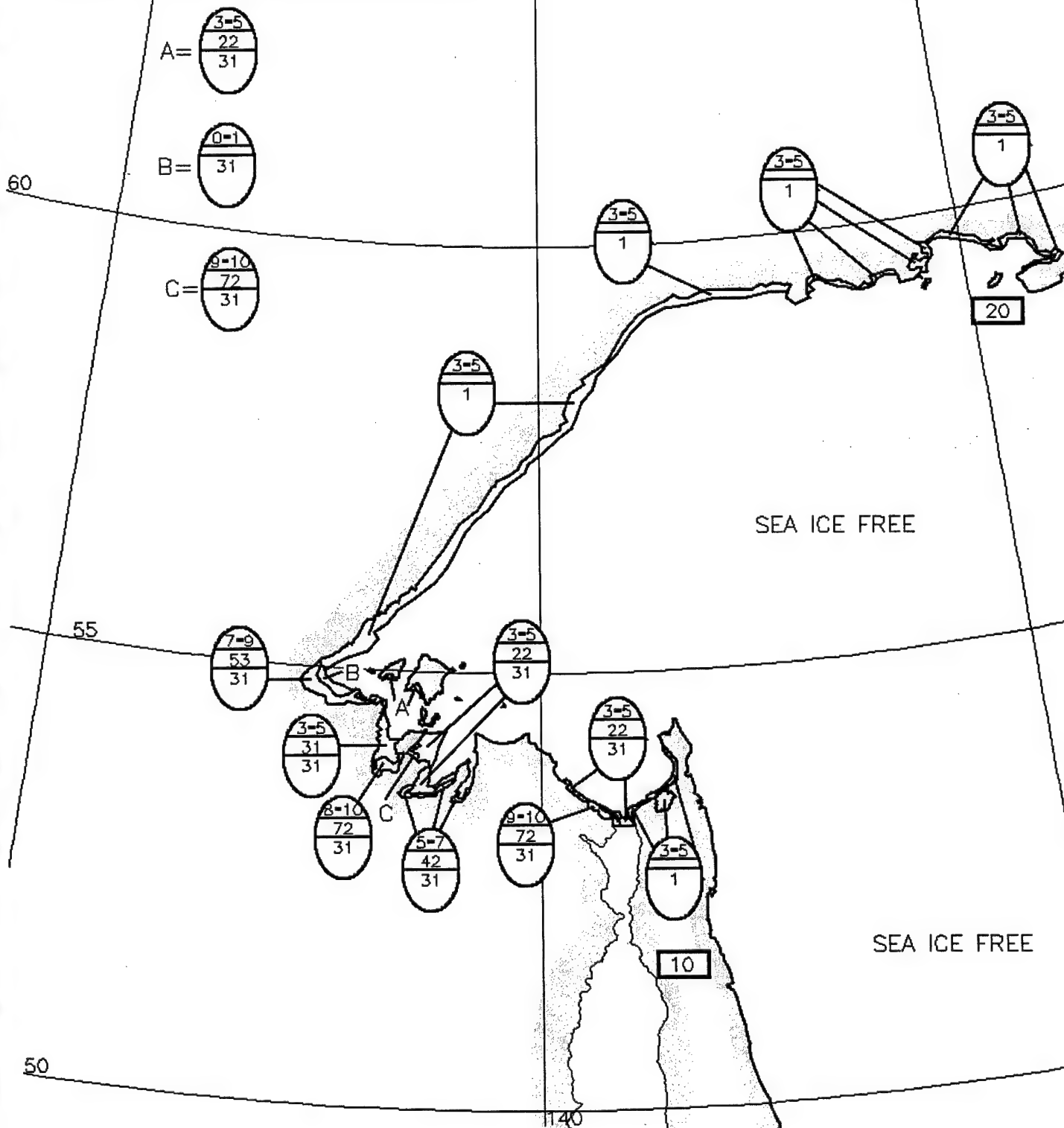
SEA ICE FREE



SEA OF OKHOTSK WEST ICE ANALYSIS NATIONAL ICE CENTER

ANALYSIS DATE: 12 NOV 96
DATA SOURCES DATE
RECONNAISSANCE.....
SHIP.....
SHORE.....
VISIBLE/INFRARED..... 10-11 NOV 96
RADAR.....

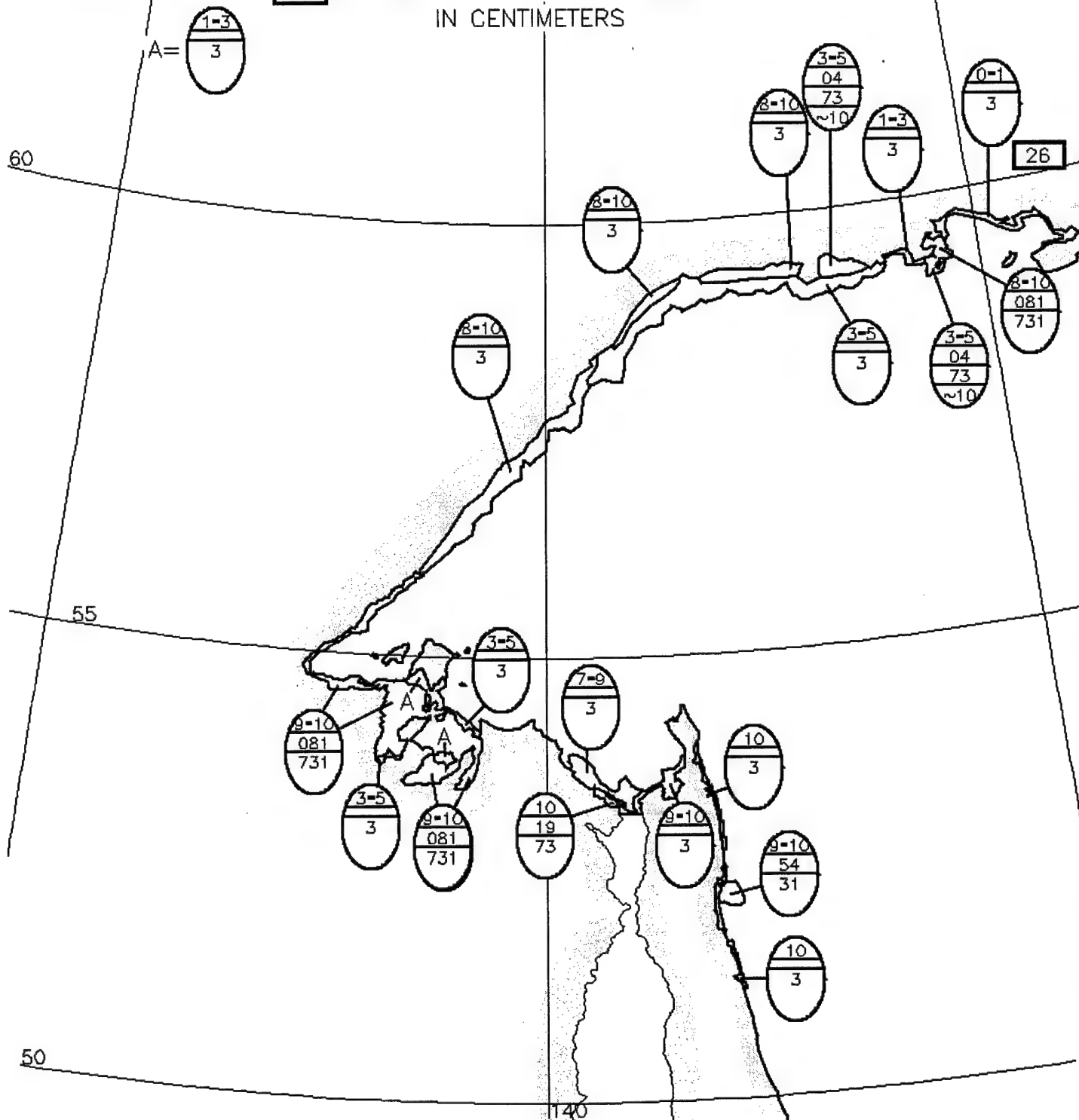
CM = THEORETICAL ICE THICKNESS
IN CENTIMETERS



SEA OF OKHOTSK WEST ICE ANALYSIS NATIONAL ICE CENTER

ANALYSIS DATE: 19 NOV 96
 DATA SOURCES DATE
 RECONNAISSANCE.....
 SHIP.....
 SHORE.....
 VISIBLE/INFRARED..... 17-18 NOV 96
 RADAR.....

CM = THEORETICAL ICE THICKNESS
 IN CENTIMETERS

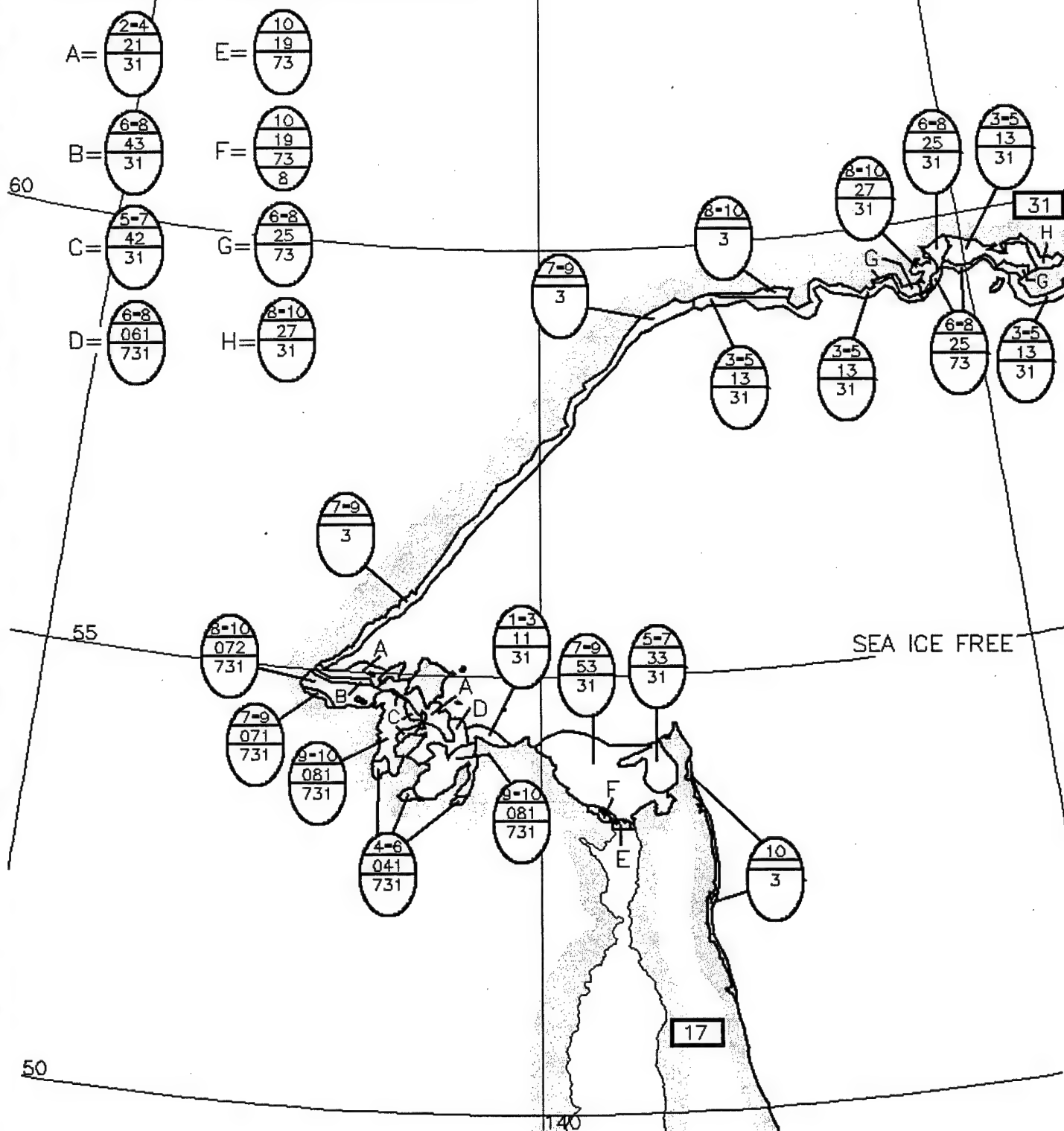


150

65

ANALYSIS DATE: 26 NOV 96
DATA SOURCES DATE
RECONNAISSANCE.....
SHIP.....
SHORE.....
VISIBLE/INFRARED..... 22-26 NOV 96
RADAR.....

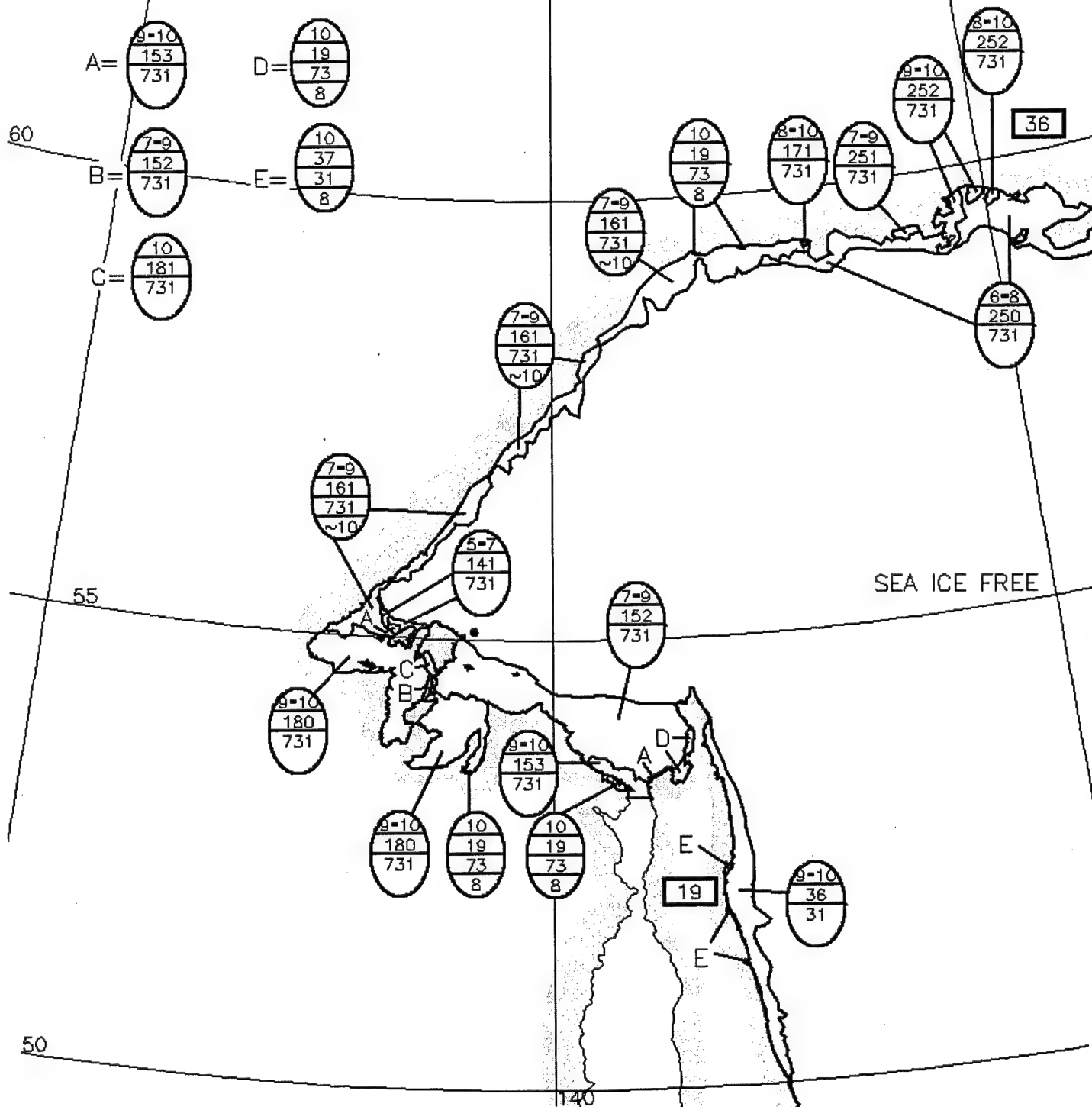
CM = THEORETICAL ICE THICKNESS
IN CENTIMETERS



SEA OF OKHOTSK WEST ICE ANALYSIS NATIONAL ICE CENTER

ANALYSIS DATE: 3 DEC 96
 DATA SOURCES DATE
 RECONNAISSANCE.....
 SHIP.....
 SHORE.....
 VISIBLE/INFRARED..... 1-3 DEC 96
 RADAR.....

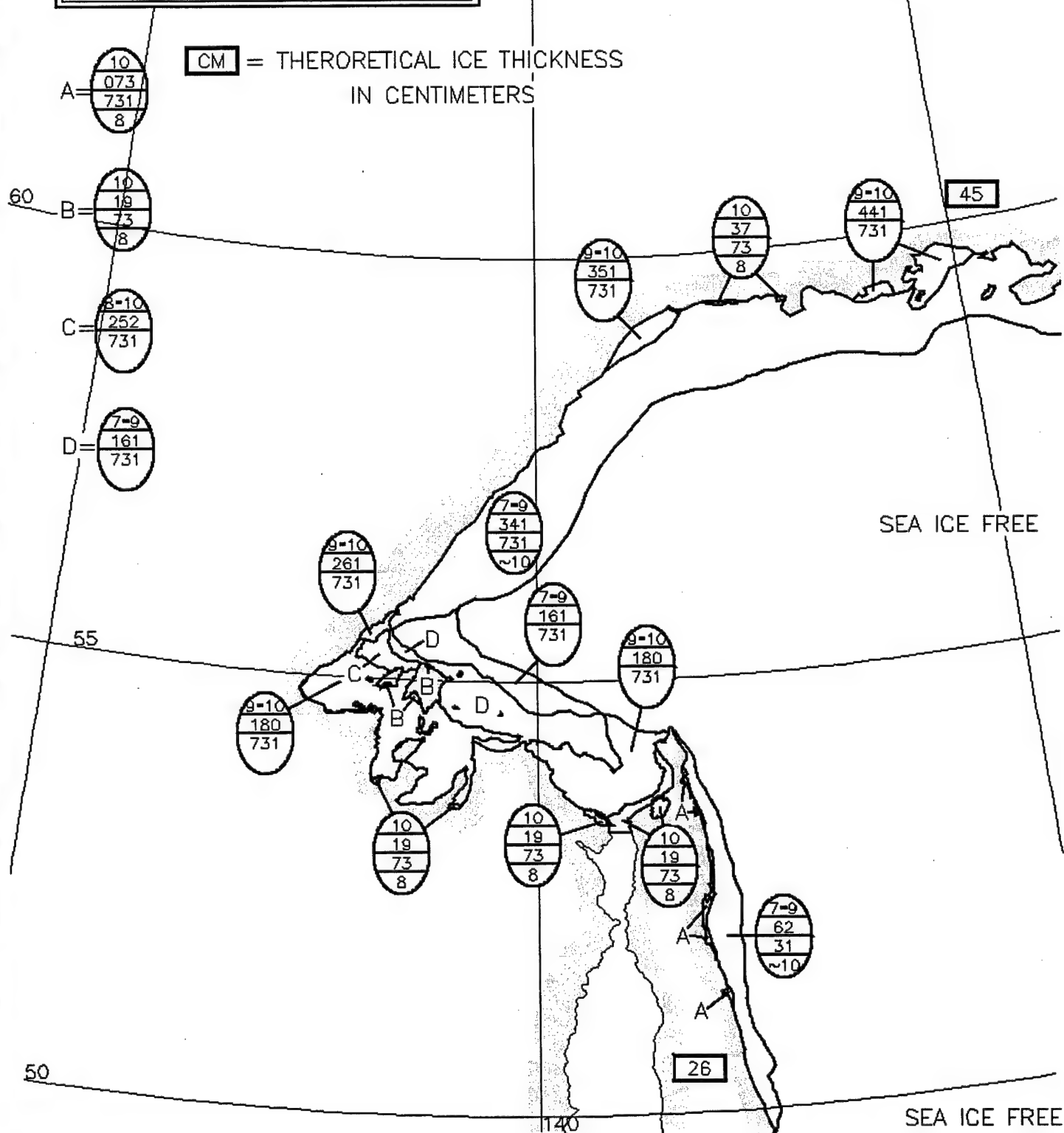
CM = THEORETICAL ICE THICKNESS
 IN CENTIMETERS



SEA OF OKHOTSK WEST ICE ANALYSIS NATIONAL ICE CENTER

ANALYSIS DATE: 10 DEC 96
 DATA SOURCES DATE
 RECONNAISSANCE.....
 SHIP.....
 SHORE.....
 VISIBLE/INFRARED..... 07-10 DEC 96
 RADAR.....

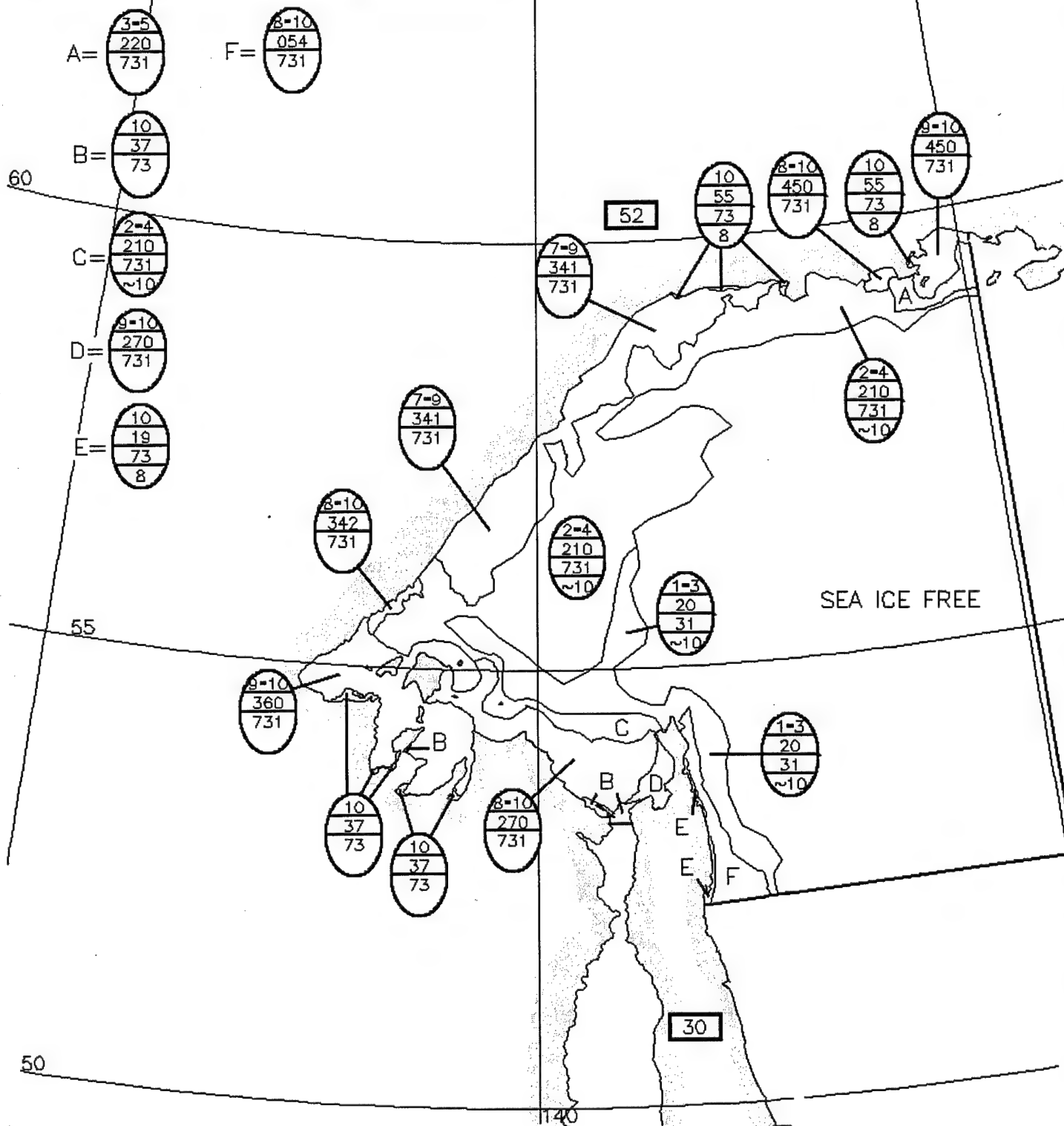
CM = THERORETICAL ICE THICKNESS
 IN CENTIMETERS



SEA OF OKHOTSK WEST ICE ANALYSIS NATIONAL ICE CENTER

ANALYSIS DATE: 17 DEC 96
 DATA SOURCES DATE
 RECONNAISSANCE.....
 SHIP.....
 SHORE.....
 VISIBLE/INFRARED..... 13-16 DEC 96
 RADAR.....

CM = THEORETICAL ICE THICKNESS
IN CENTIMETERS



150

SEA OF OKHOTSK WEST ICE ANALYSIS
NATIONAL ICE CENTER

ANALYSIS DATE: 24 DEC 96

DATA SOURCES	DATE
--------------	------

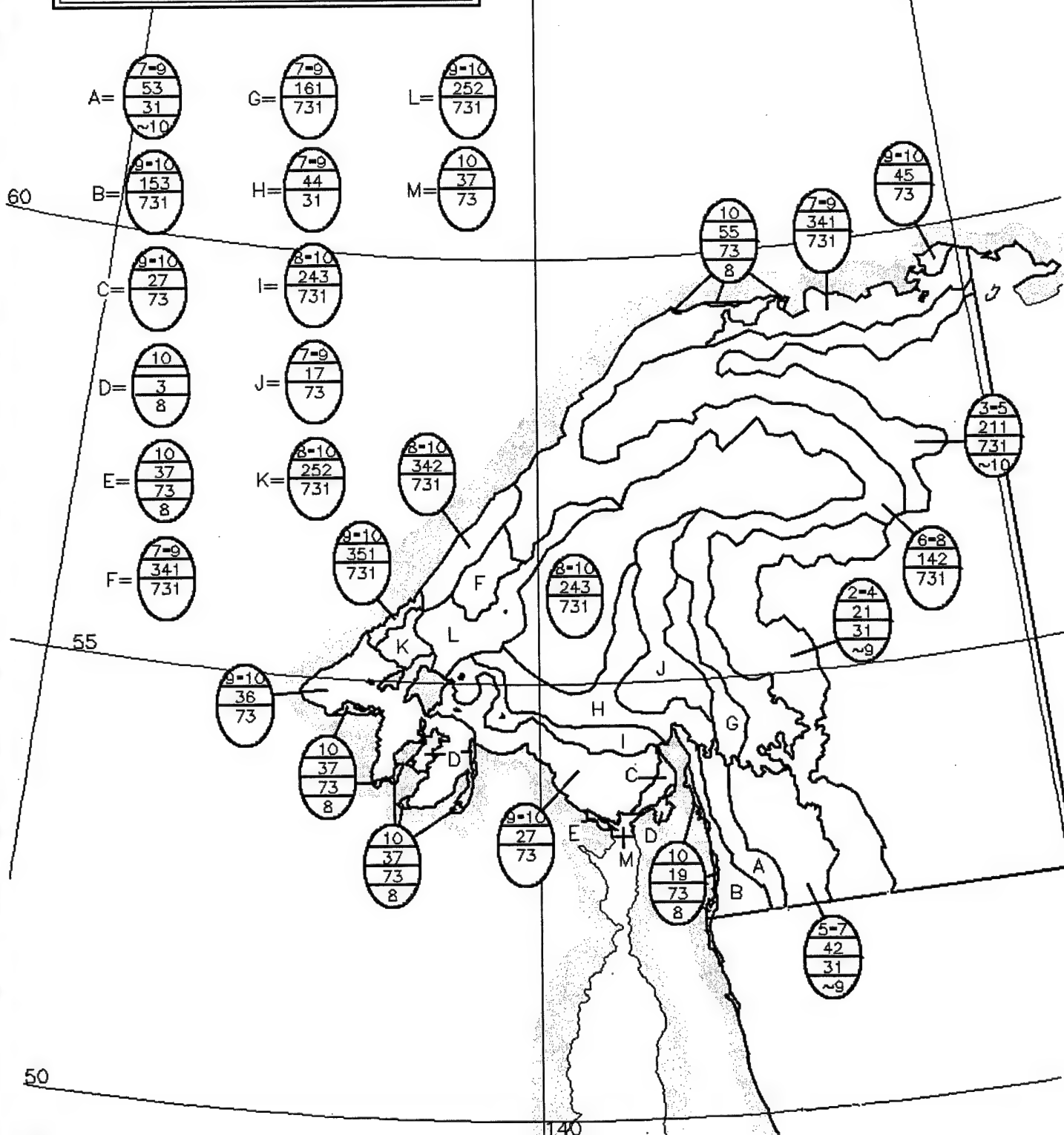
RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 22-23 DEC 96

RADAR.....



130

150

65

SEA OF OKHOTSK WEST ICE ANALYSIS NATIONAL ICE CENTER

ANALYSIS DATE: 31 DEC 96

DATA SOURCES DATE

RECONNAISSANCE.....

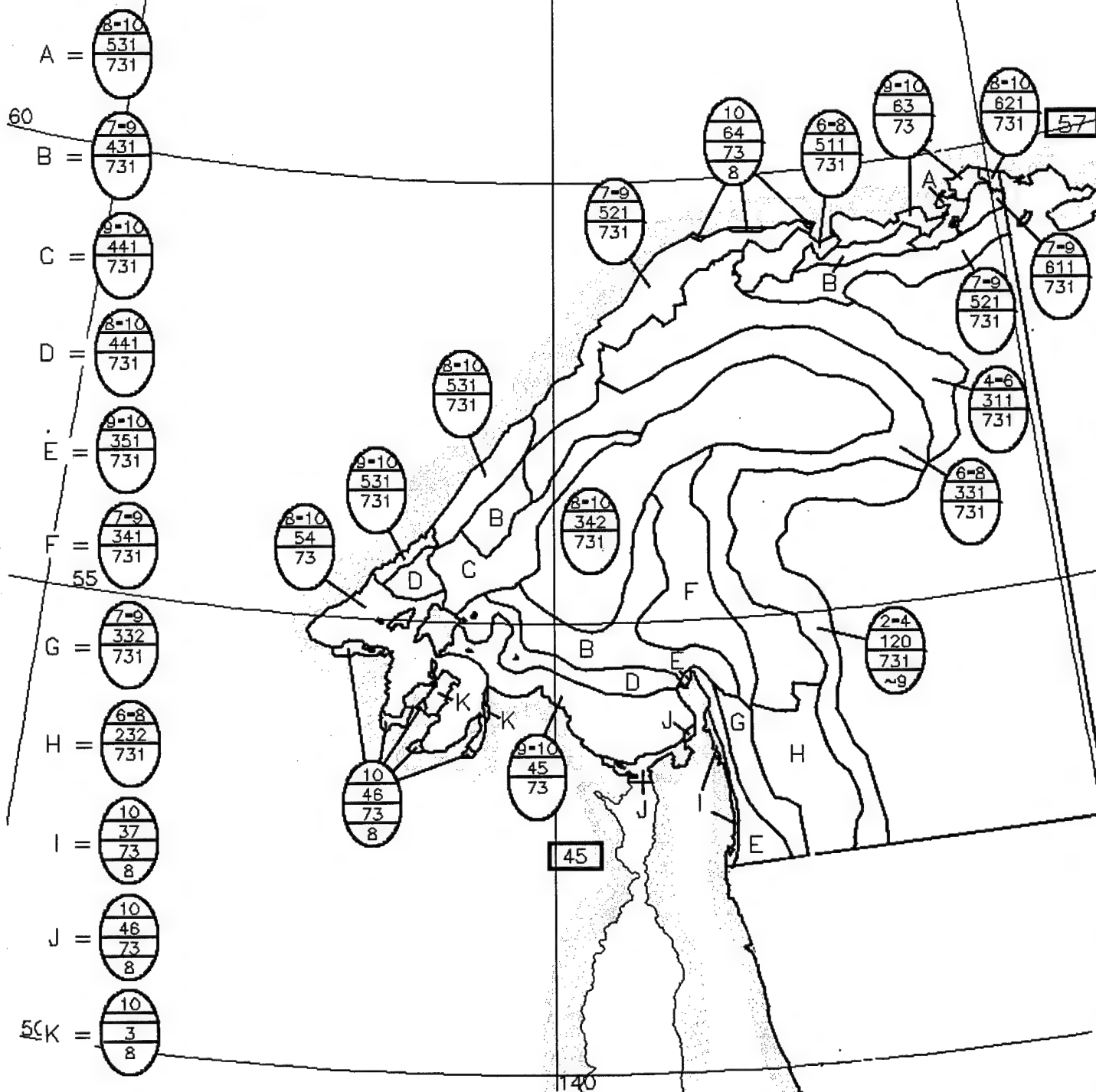
SHIP.....

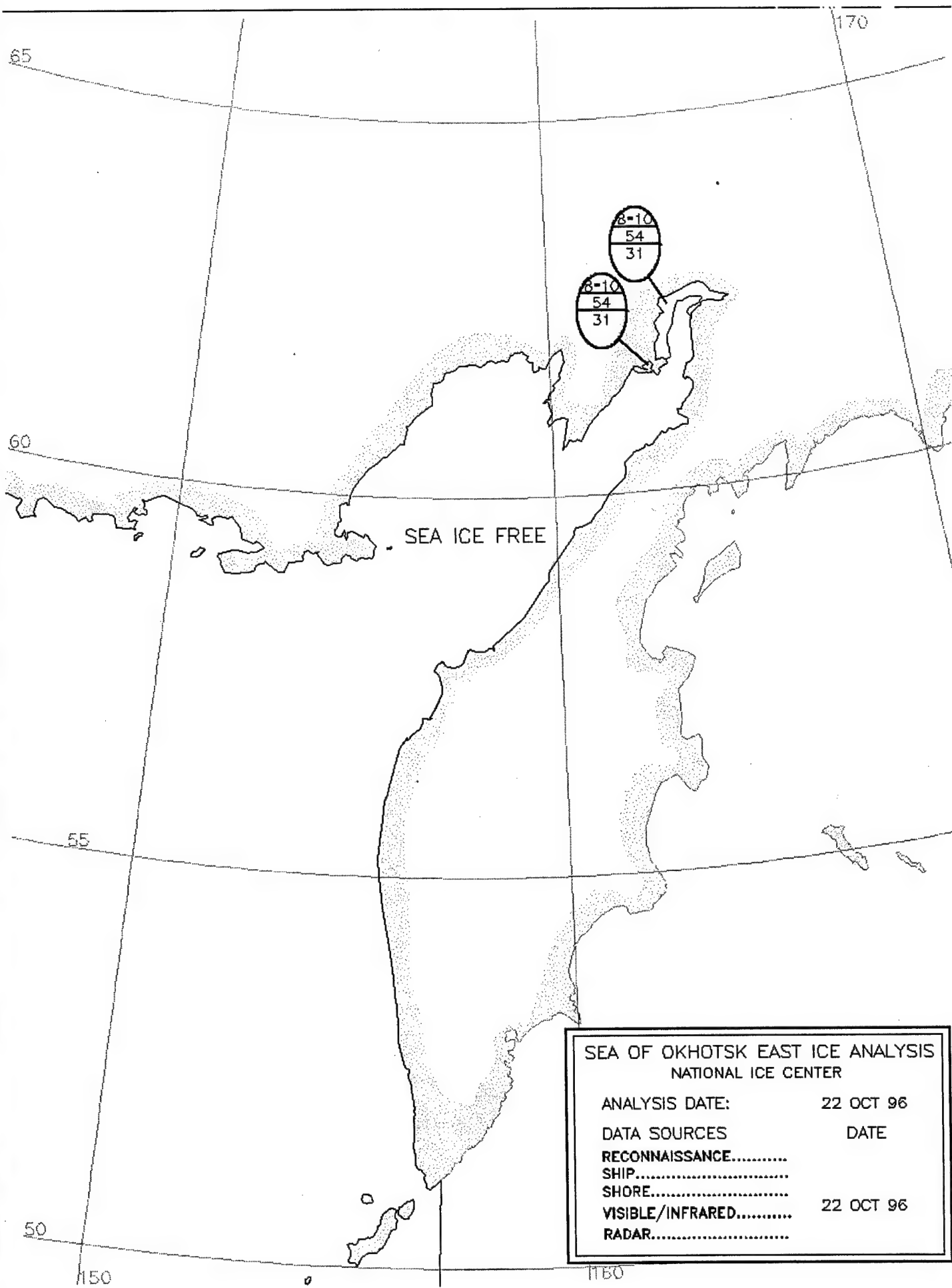
SHORE.....

VISIBLE/INFRARED.....

RADAR.....

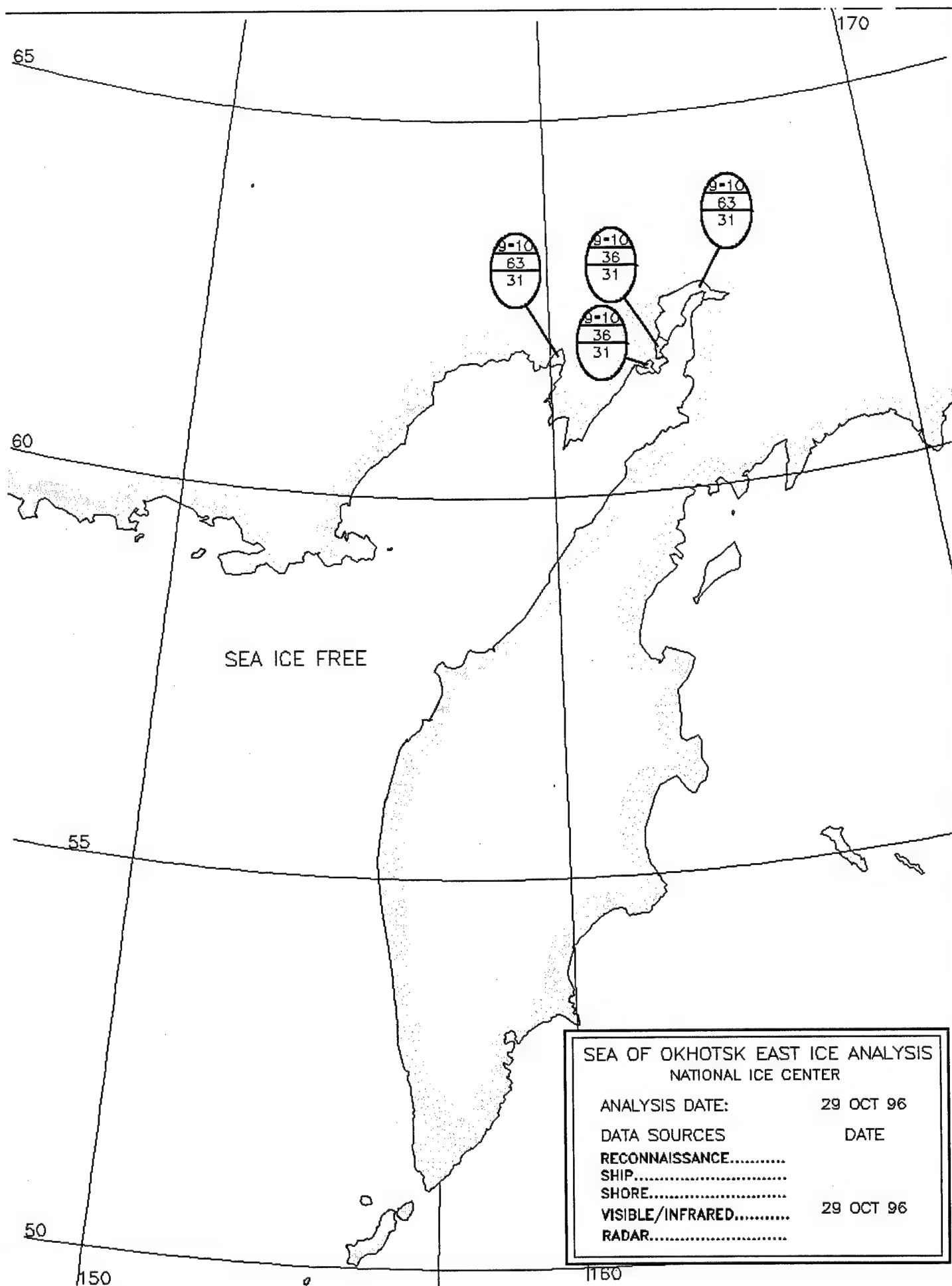
CM = THEORETICAL ICE THICKNESS
IN CENTIMETERS

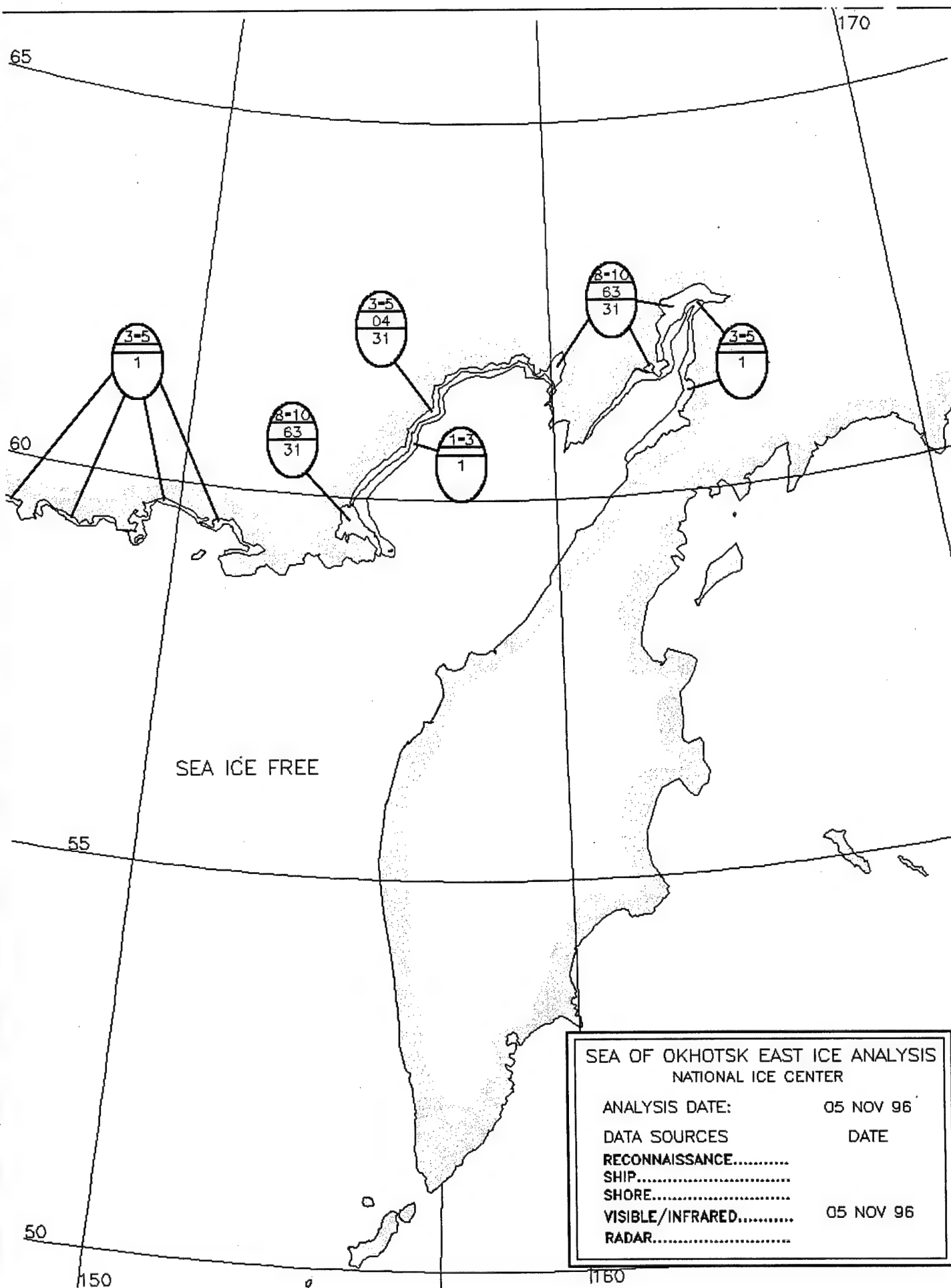




SEA OF OKHOTSK EAST ICE ANALYSIS
NATIONAL ICE CENTER

ANALYSIS DATE:	22 OCT 96
DATA SOURCES	DATE
RECONNAISSANCE.....	
SHIP.....	
SHORE.....	
VISIBLE/INFRARED.....	22 OCT 96
RADAR.....	





SEA OF OKHOTSK EAST ICE ANALYSIS
NATIONAL ICE CENTER

ANALYSIS DATE: 05 NOV 96

DATA SOURCES DATE

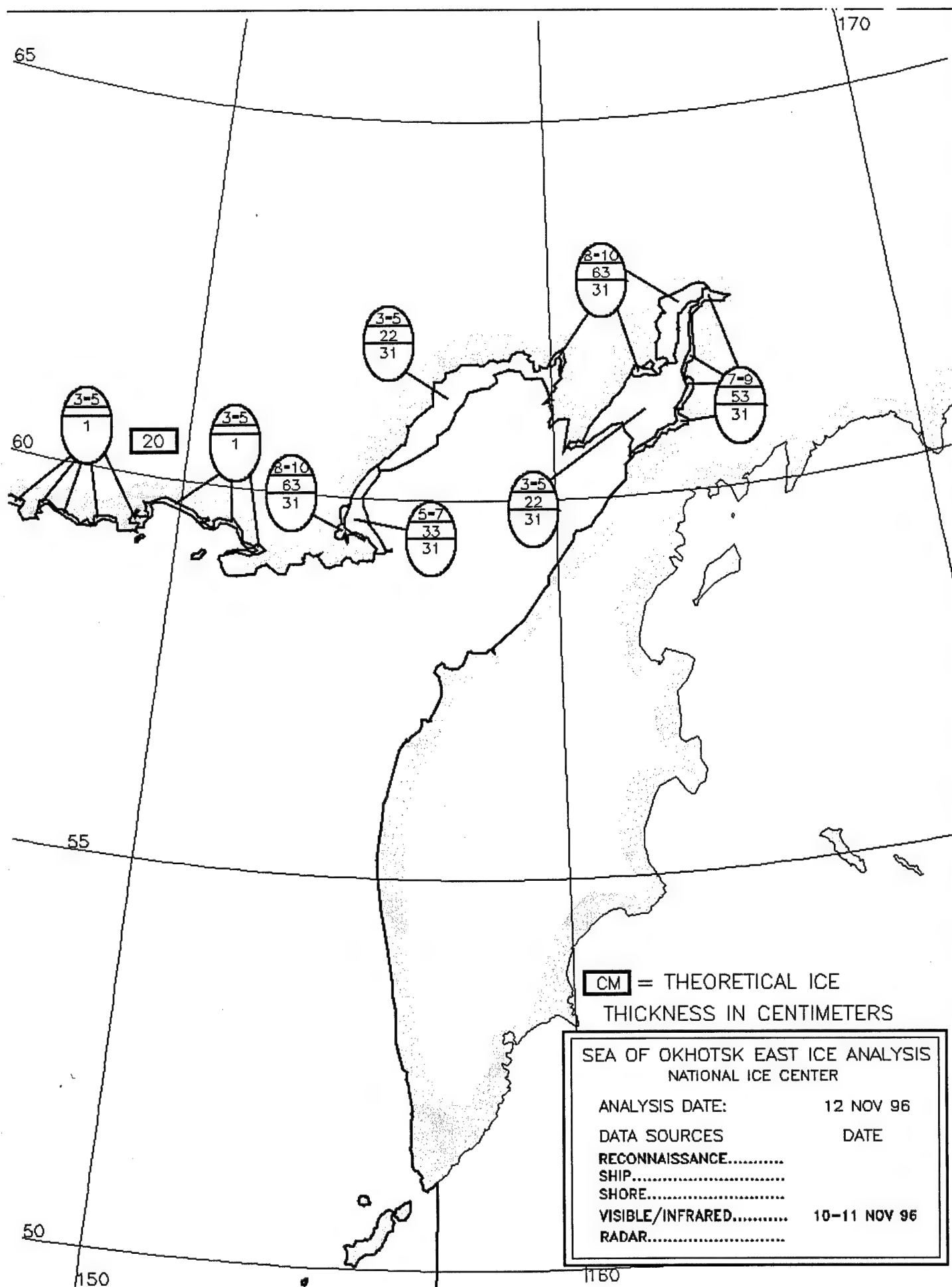
RECONNAISSANCE.....

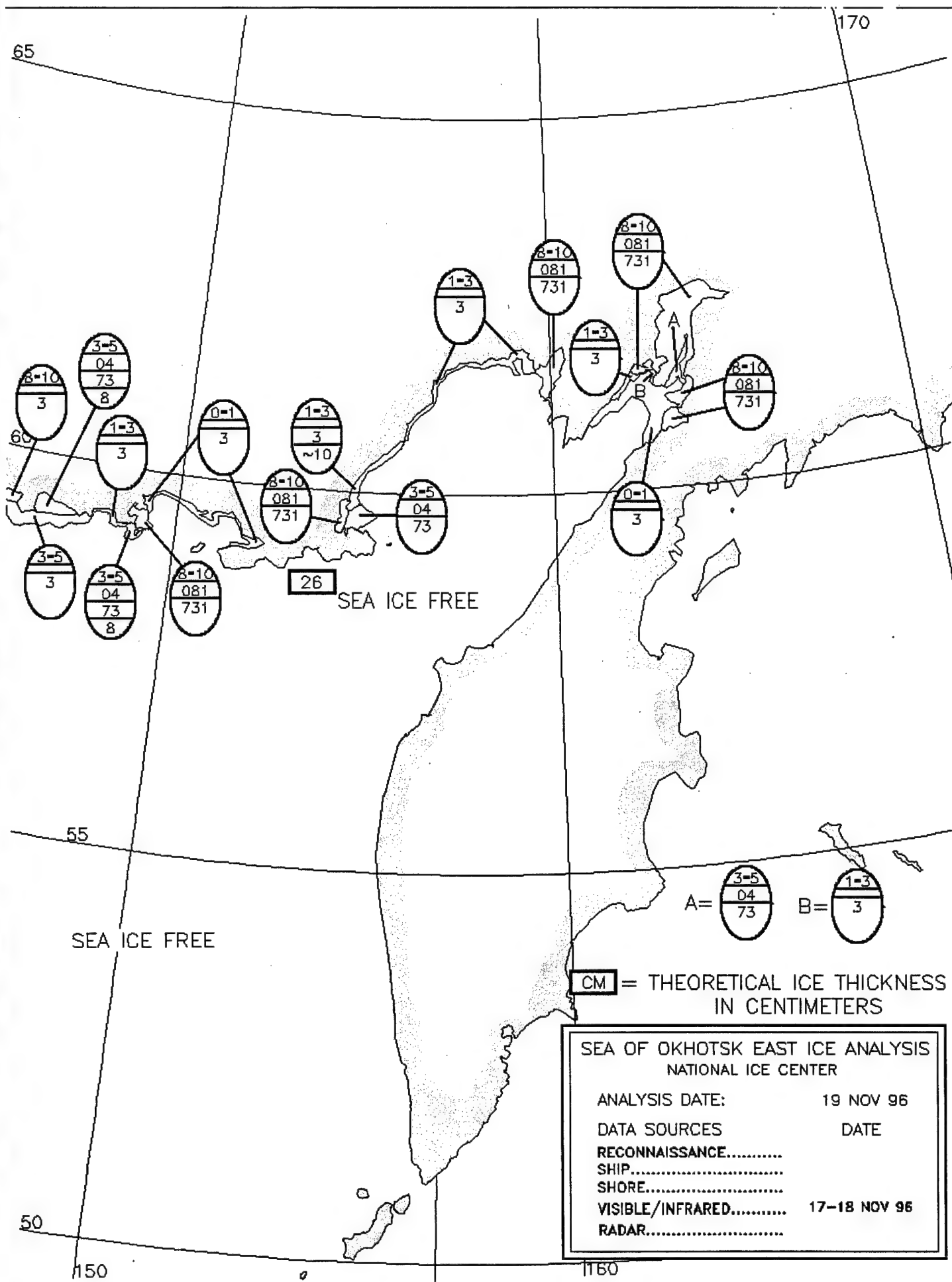
SHIP.....

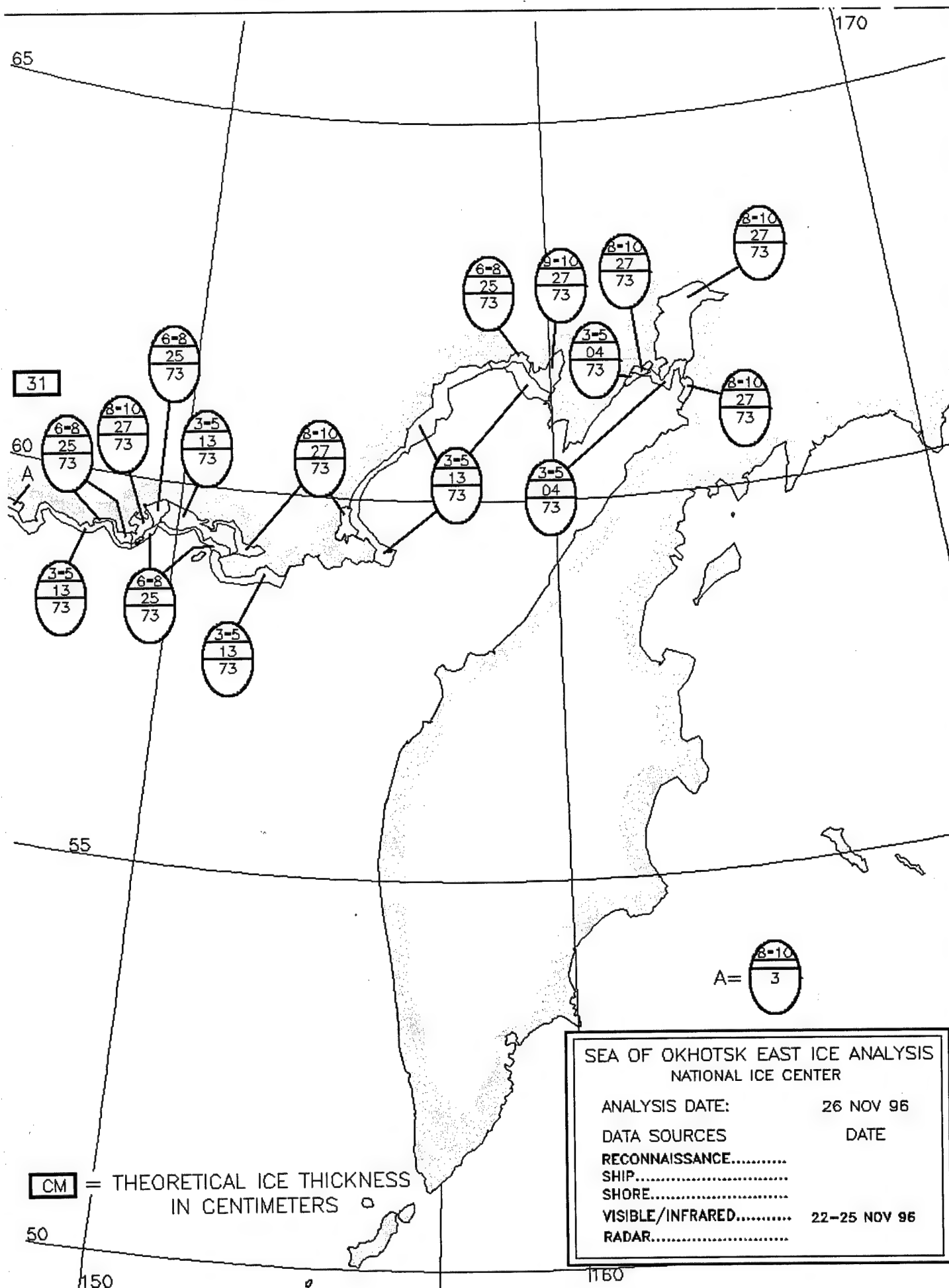
SHORE.....

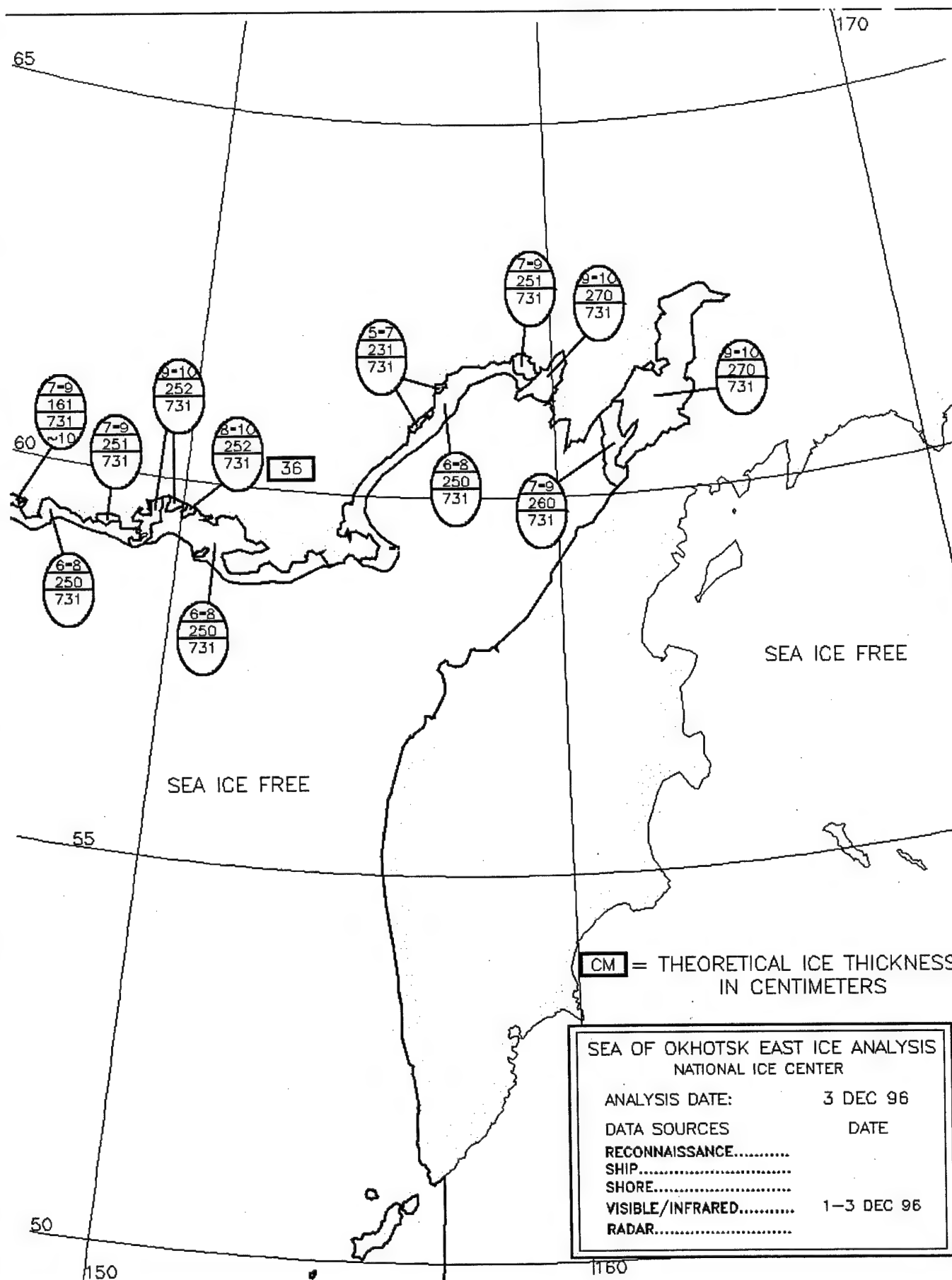
VISIBLE/INFRARED..... 05 NOV 96

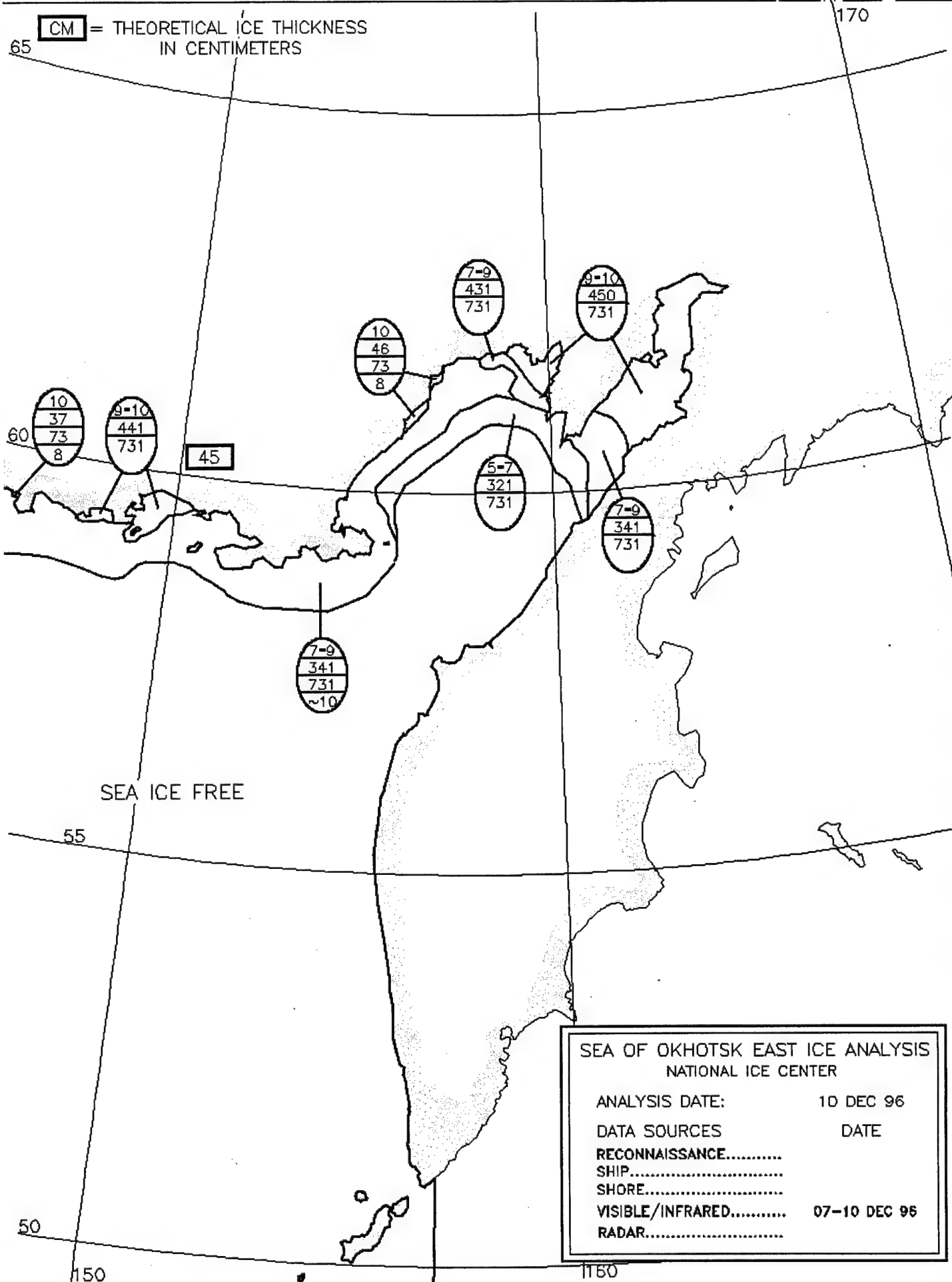
RADAR.....











CM = THEORETICAL ICE THICKNESS
IN CENTIMETERS

65

170

60

45

SEA ICE FREE

55

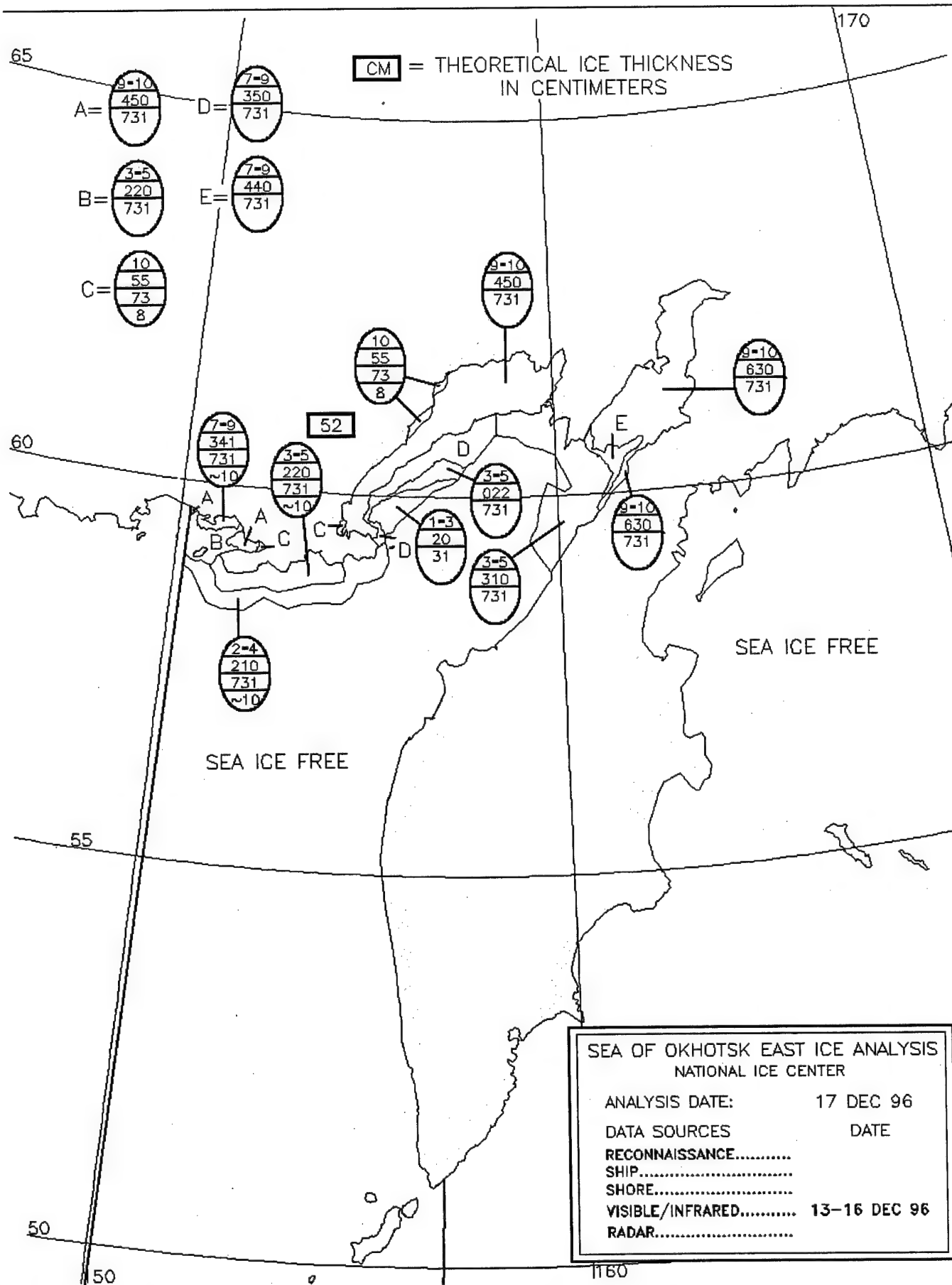
50

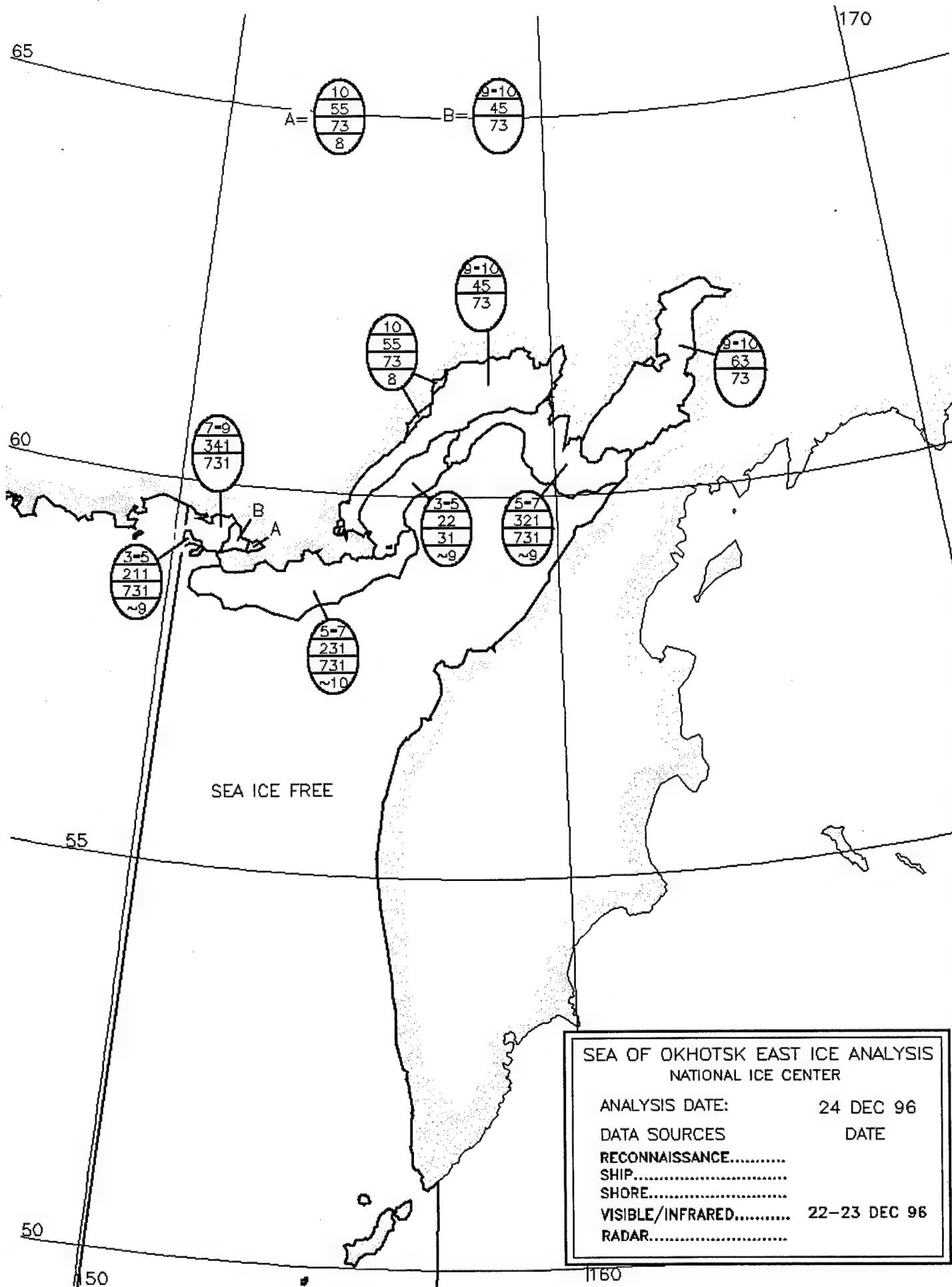
150

160

SEA OF OKHOTSK EAST ICE ANALYSIS
NATIONAL ICE CENTER

ANALYSIS DATE:	10 DEC 96
DATA SOURCES	DATE
RECONNAISSANCE.....	
SHIP.....	
SHORE.....	
VISIBLE/INFRARED.....	07-10 DEC 96
RADAR.....	





SEA OF OKHOTSK EAST ICE ANALYSIS
NATIONAL ICE CENTER

ANALYSIS DATE: 24 DEC 96

DATA SOURCES DATE

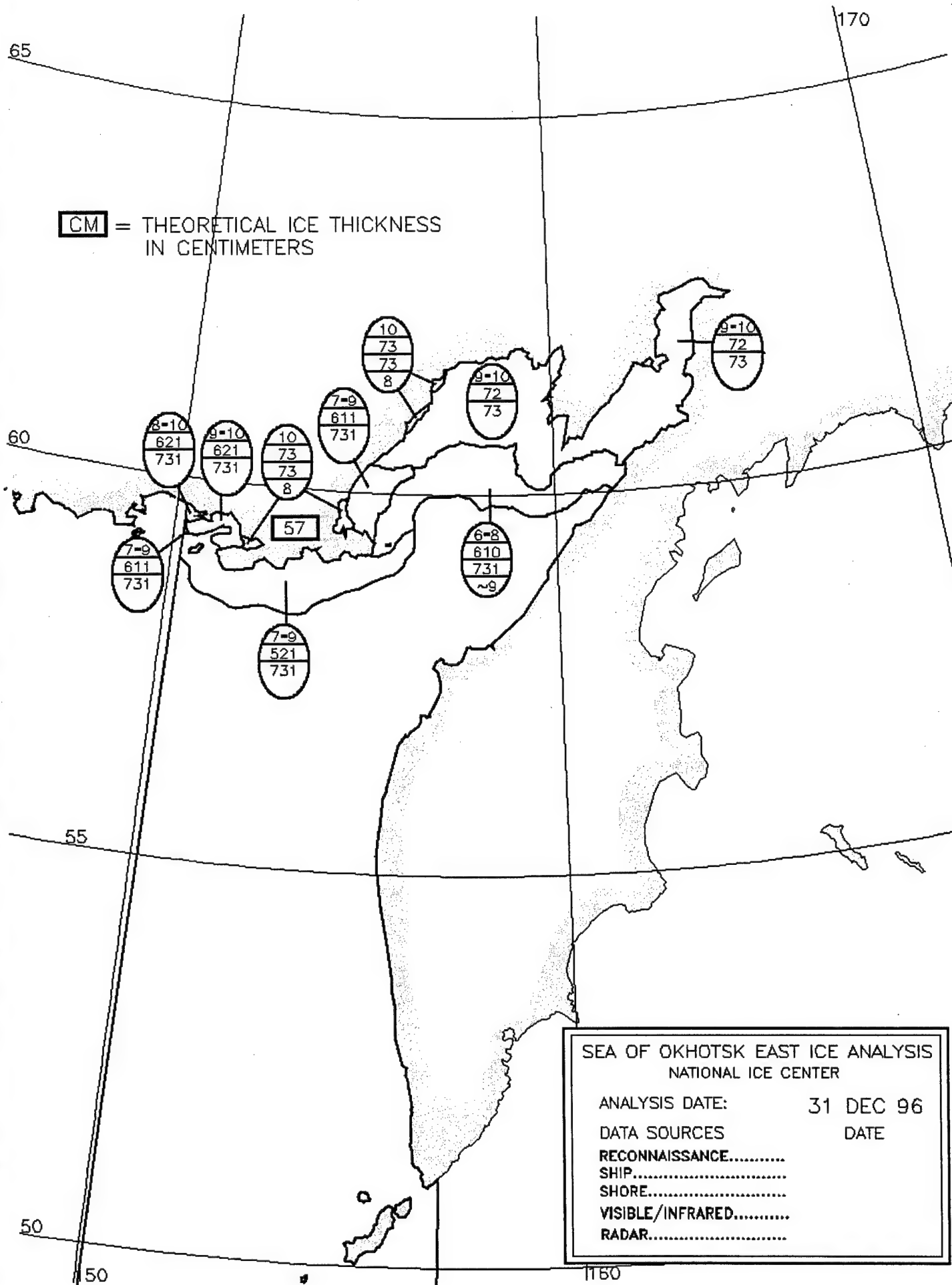
RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 22-23 DEC 96

RADAR.....



SEA OF OKHOTSK EAST ICE ANALYSIS
NATIONAL ICE CENTER

ANALYSIS DATE: 31 DEC 96

DATA SOURCES DATE

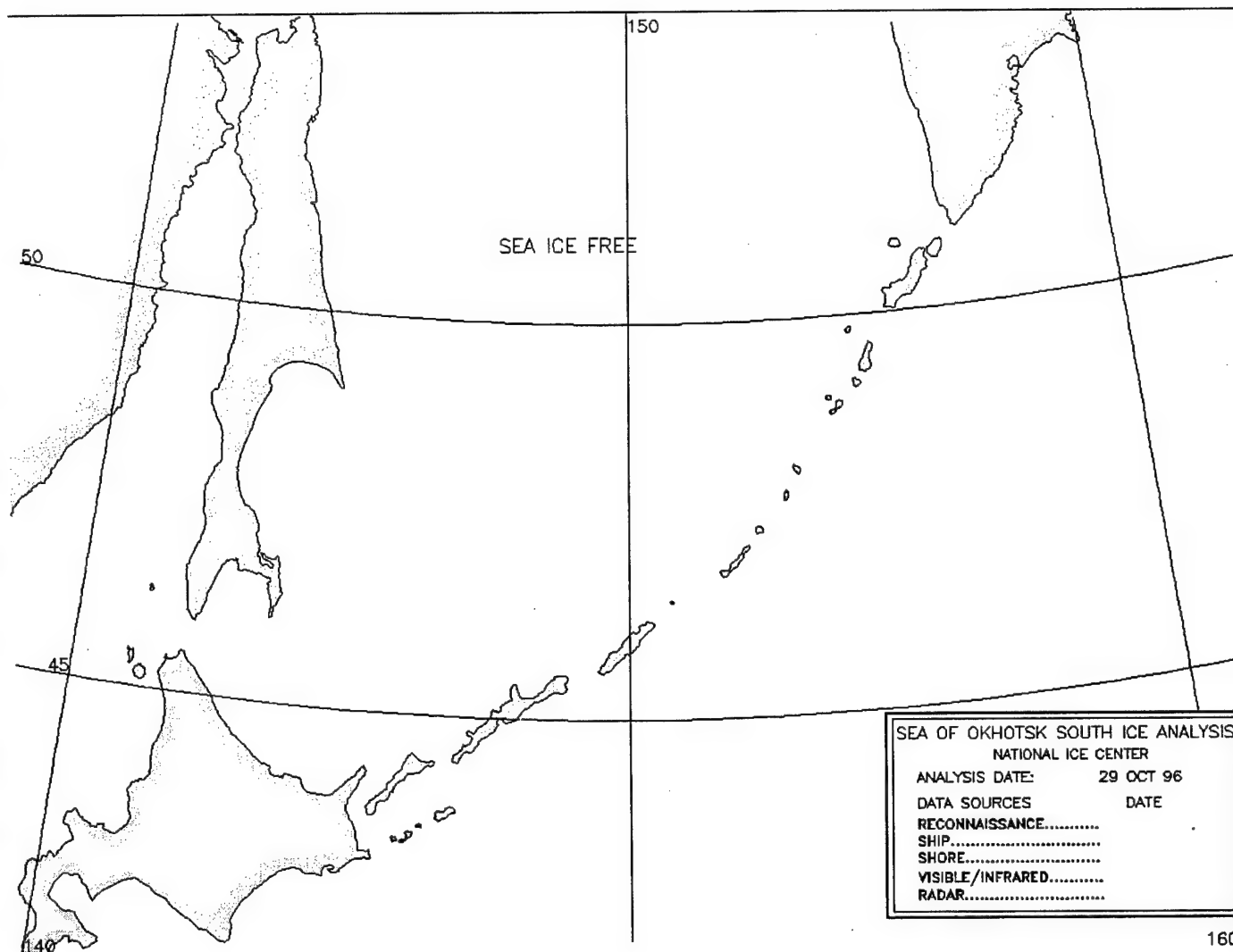
RECONNAISSANCE.....

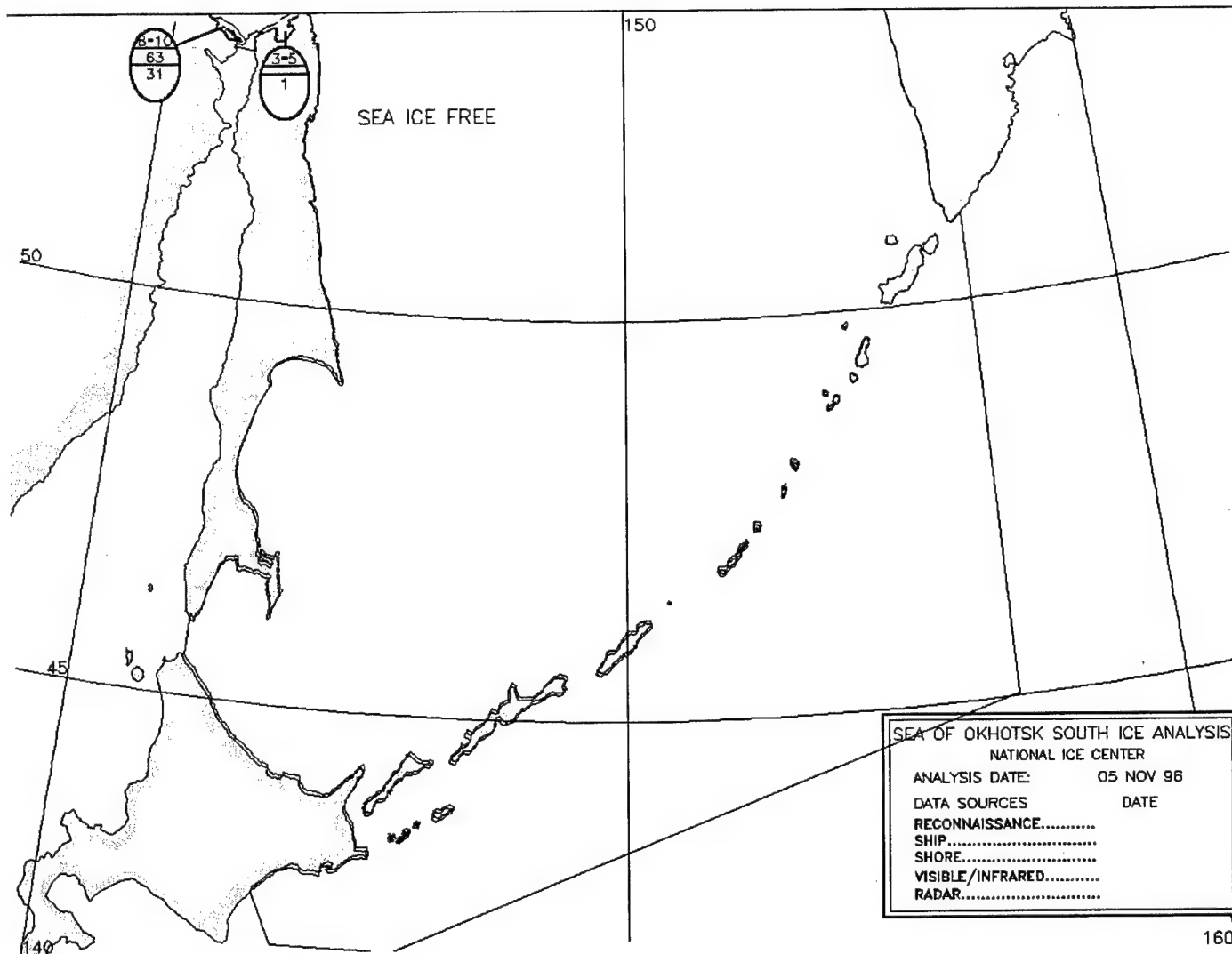
SHIP.....

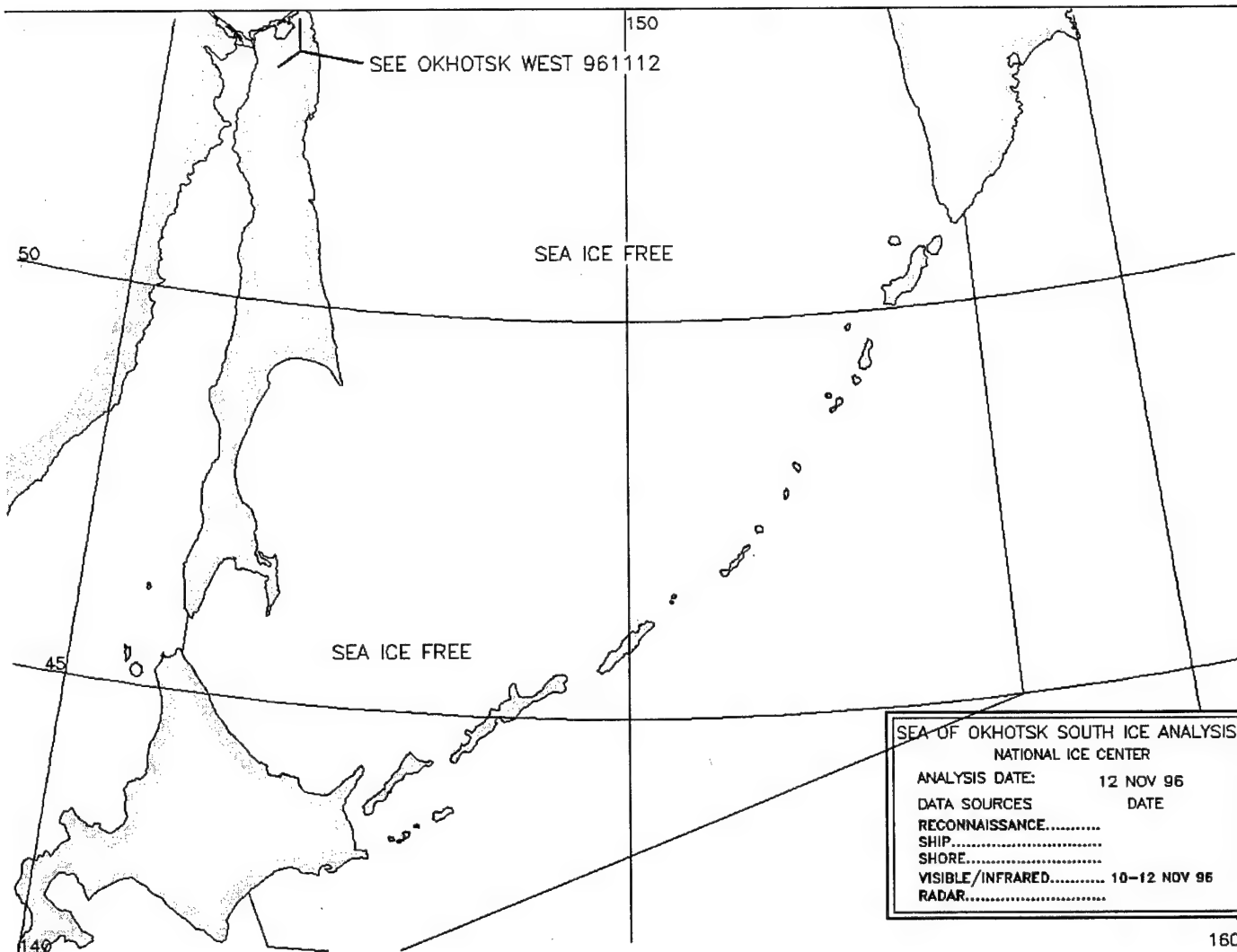
SHORE.....

VISIBLE/INFRARED.....

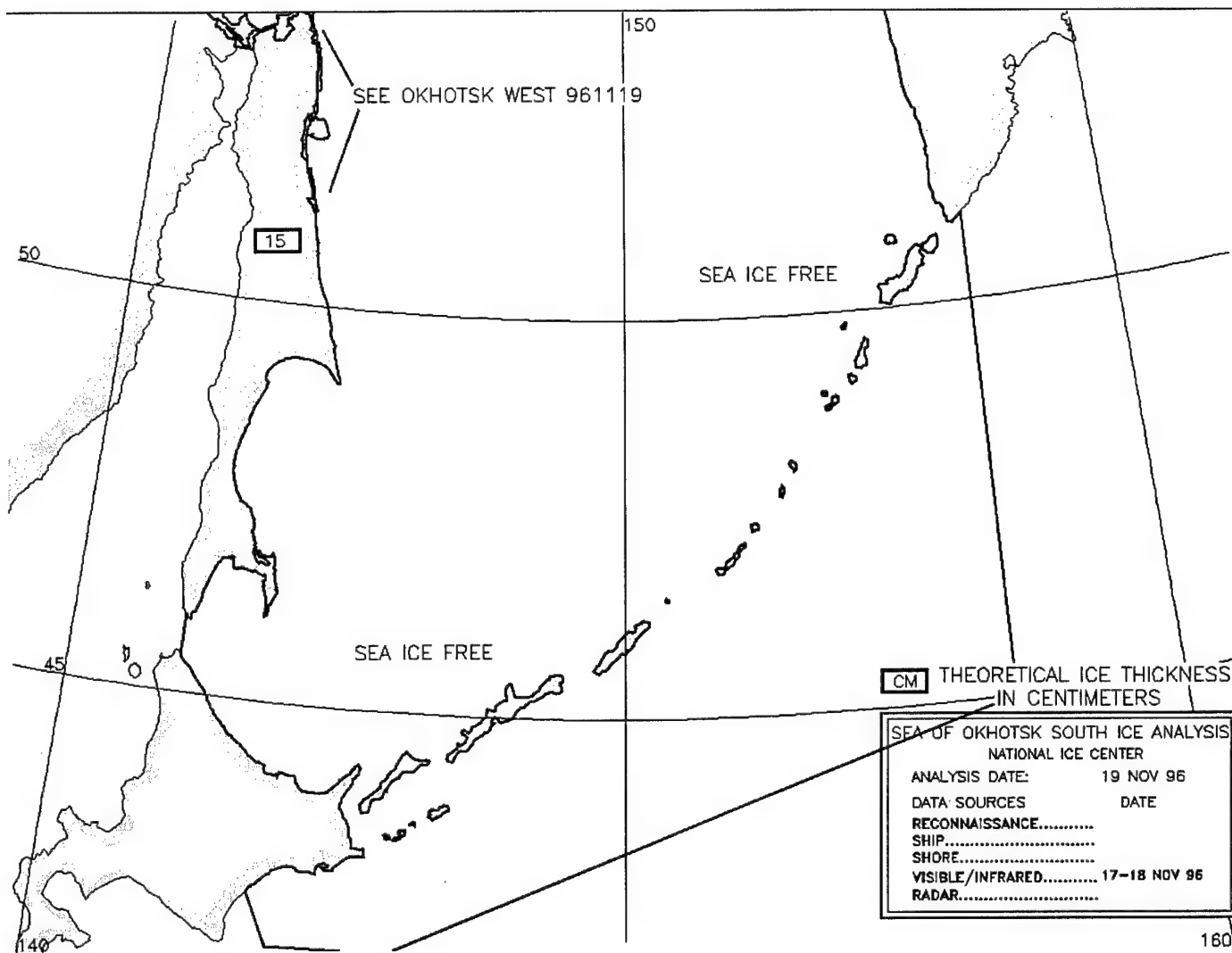
RADAR.....

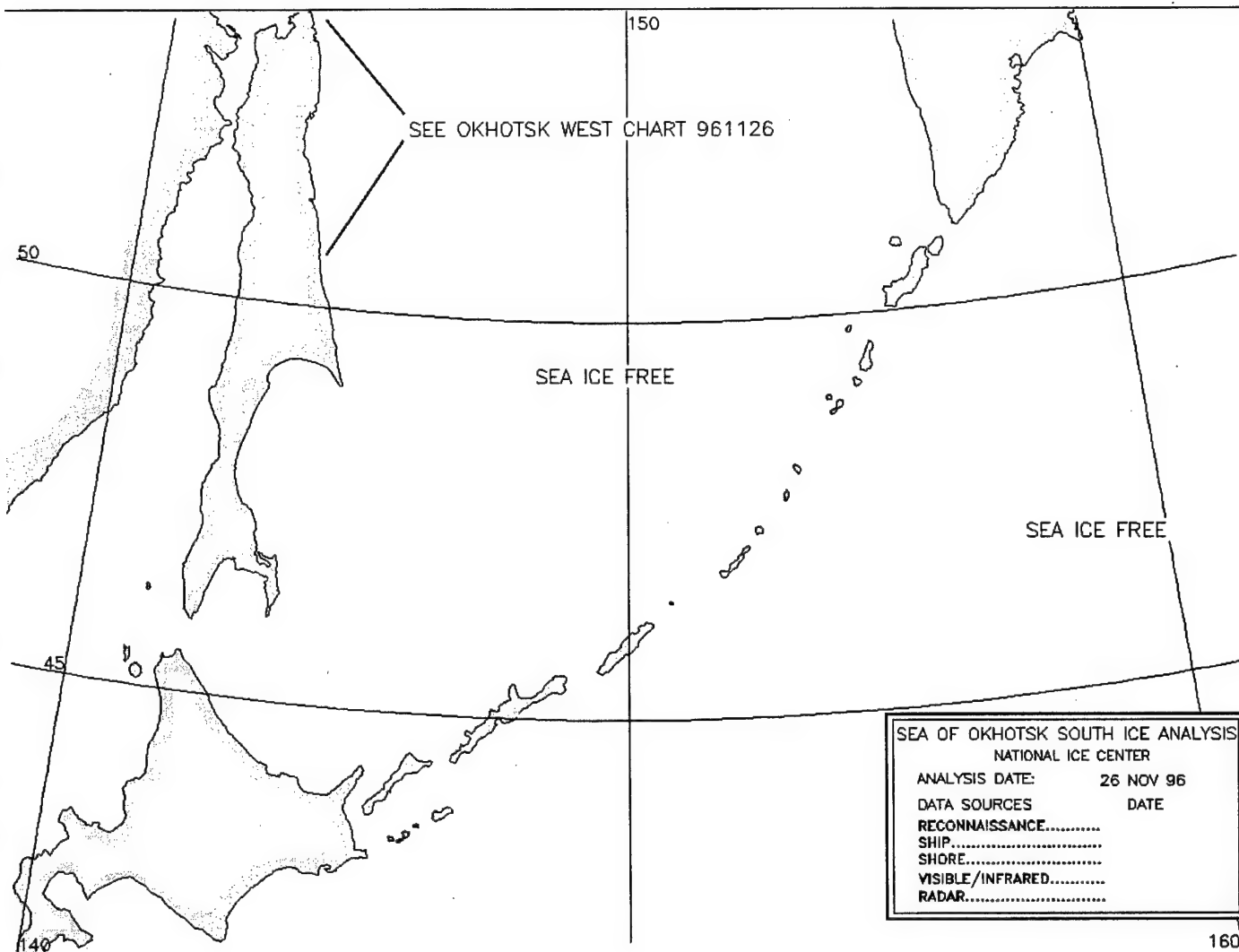


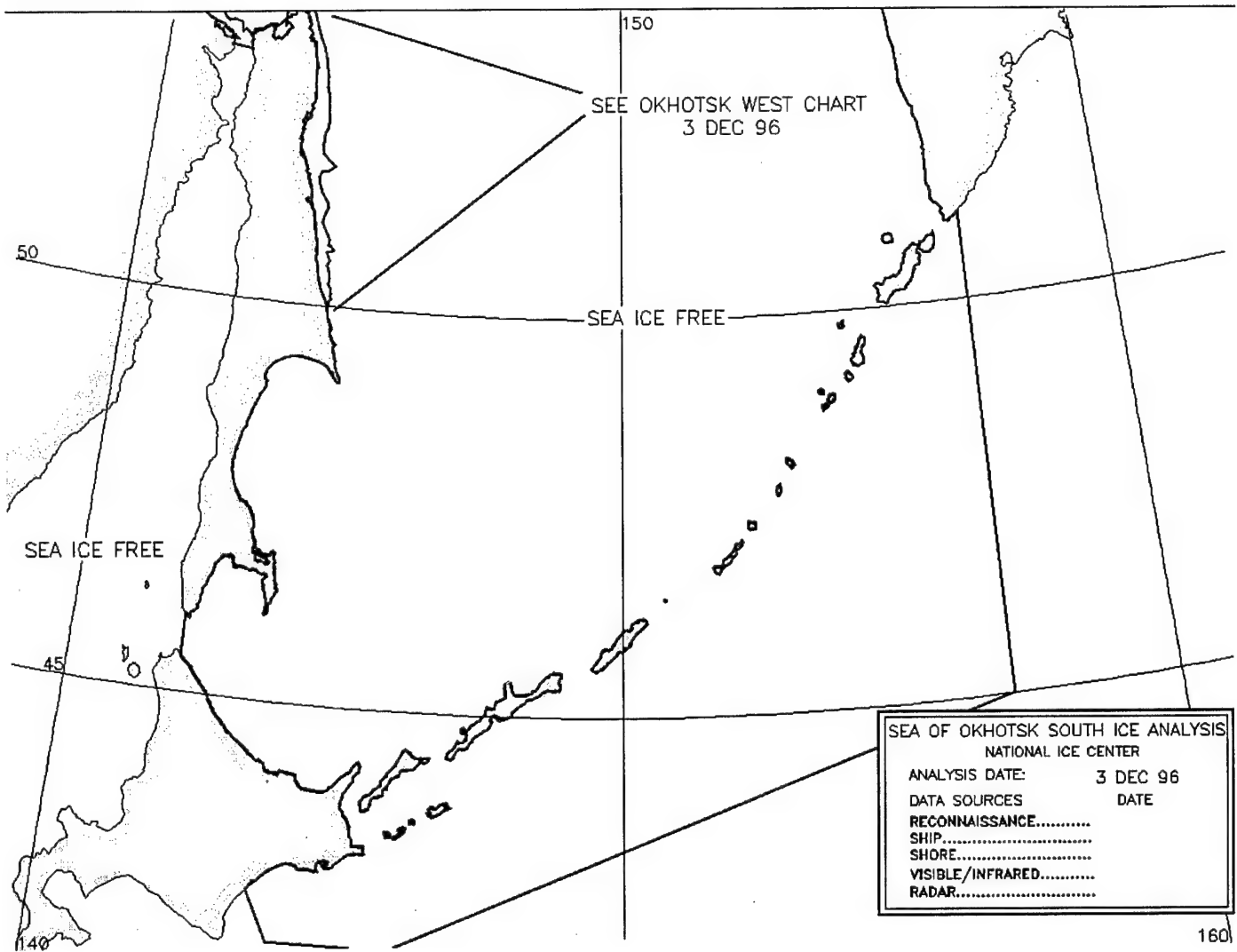


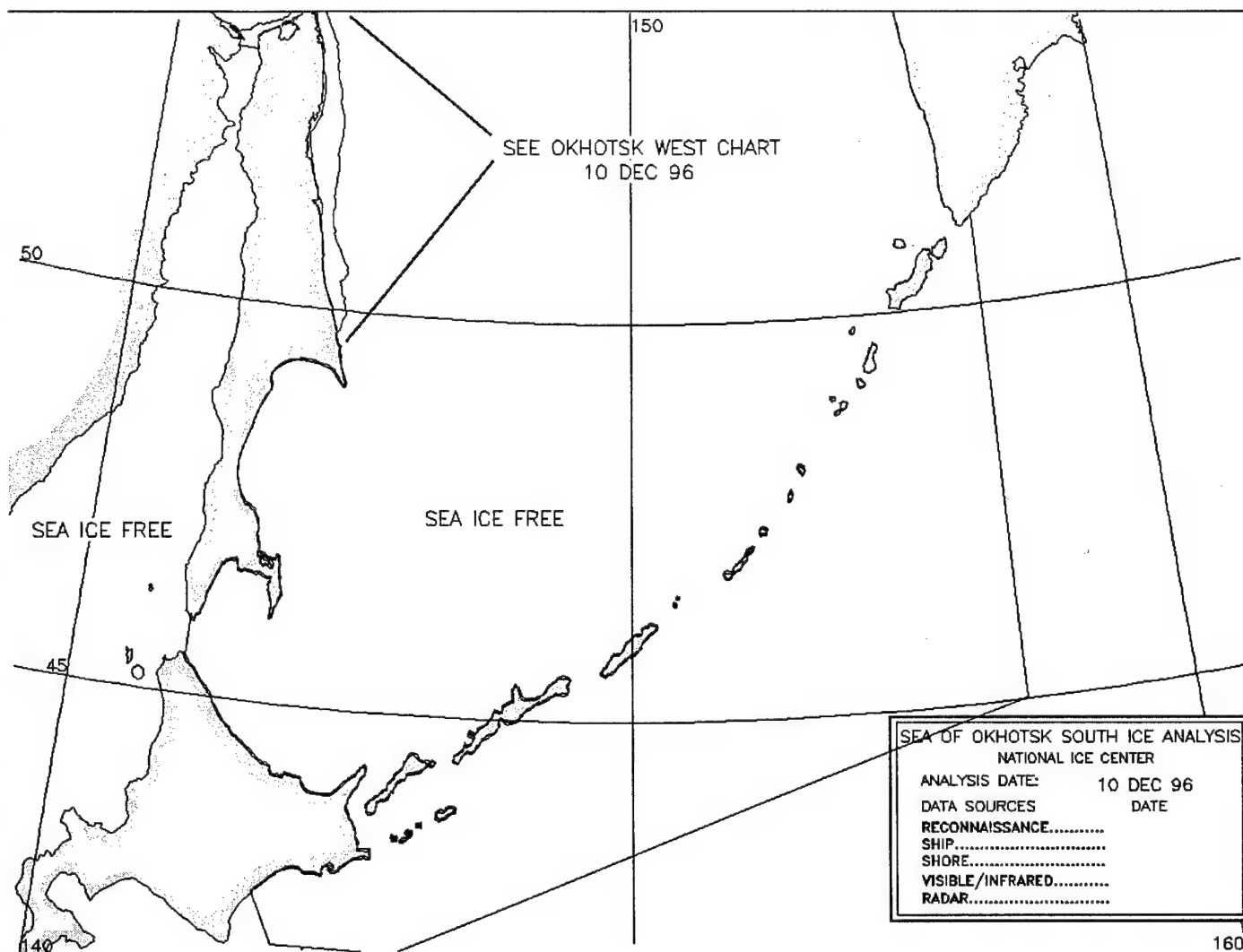


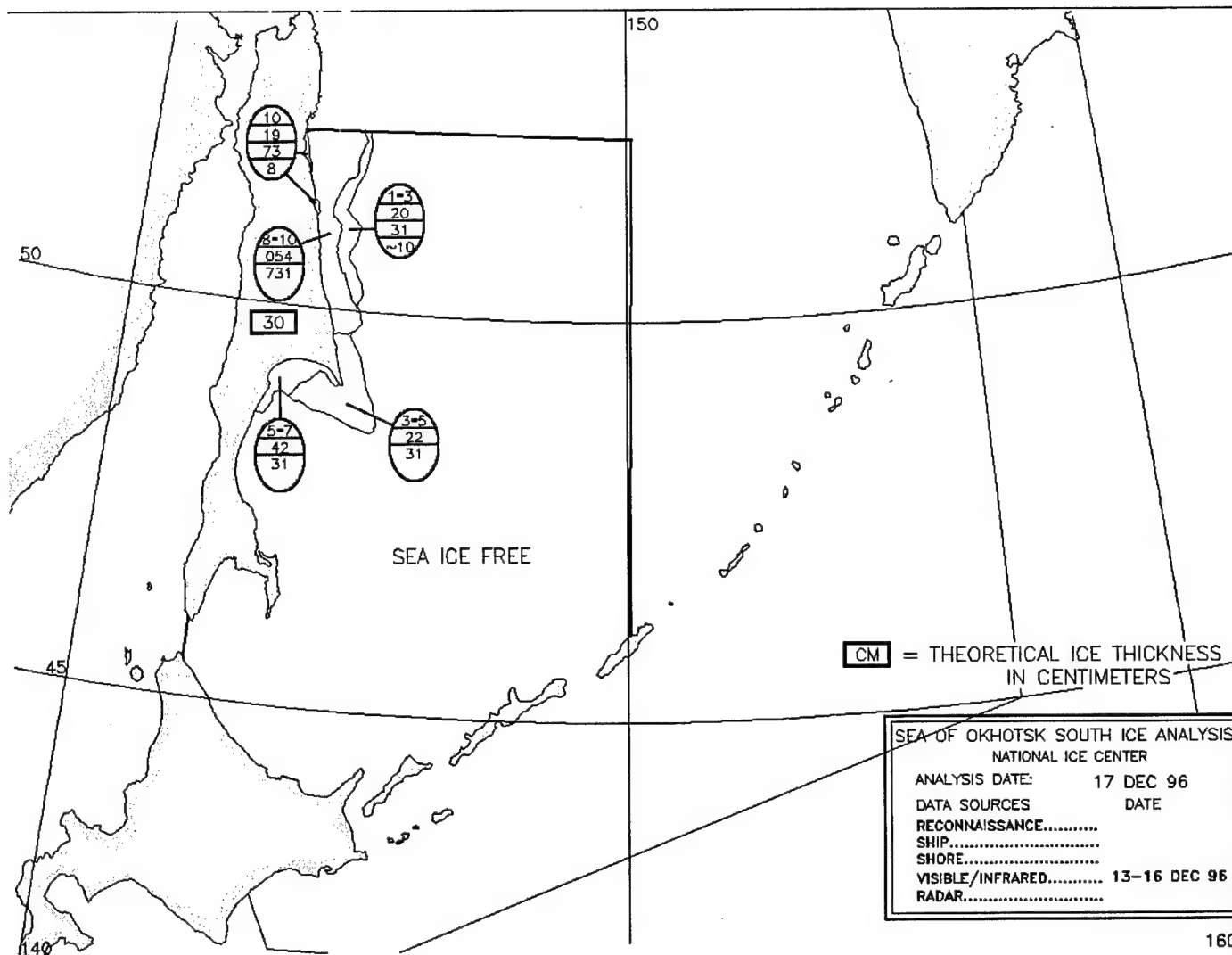
SEA OF OKHOTSK SOUTH ICE ANALYSIS	
NATIONAL ICE CENTER	
ANALYSIS DATE:	12 NOV 96
DATA SOURCES	DATE
RECONNAISSANCE.....	
SHIP.....	
SHORE.....	
VISIBLE/INFRARED.....	10-12 NOV 96
RADAR.....	

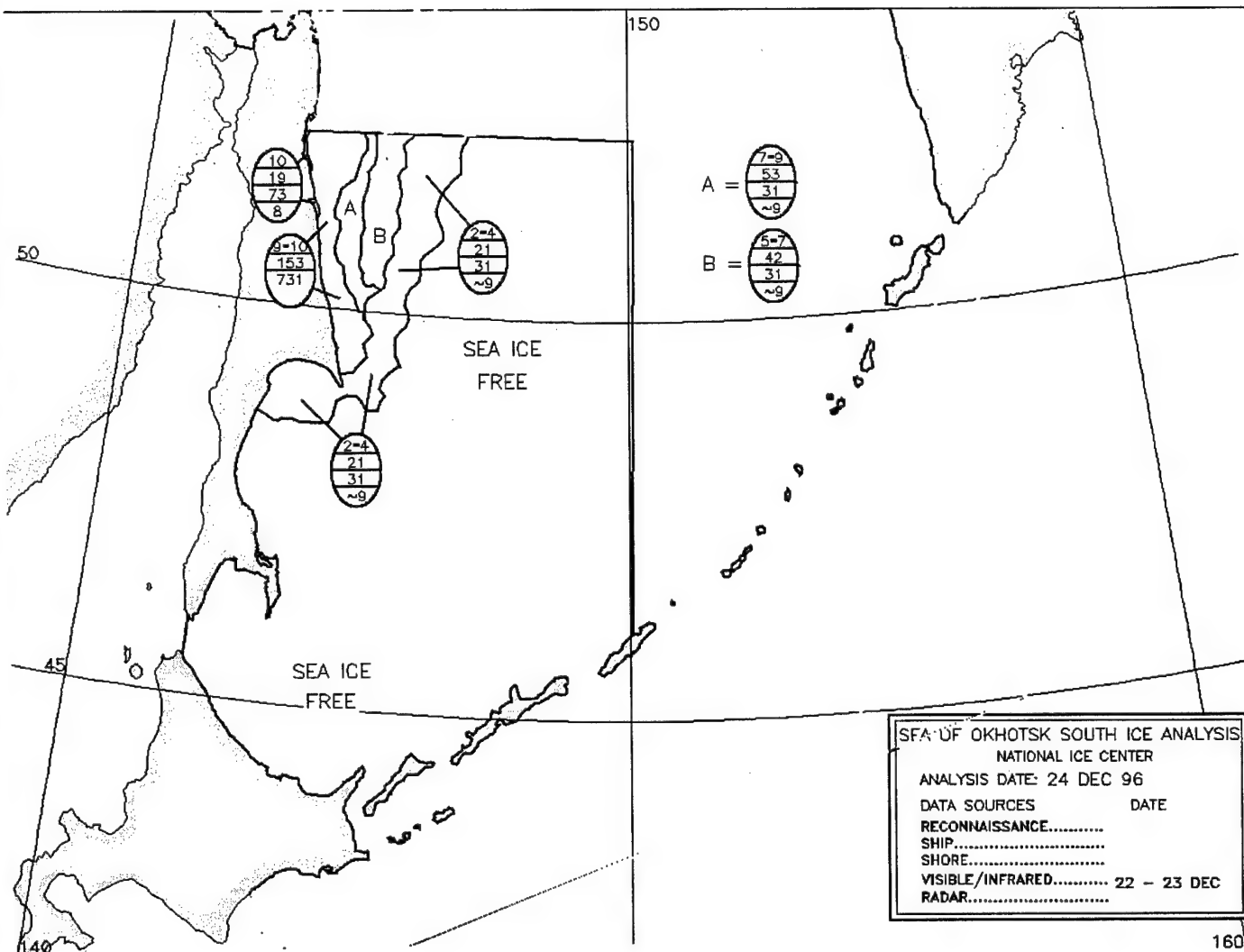




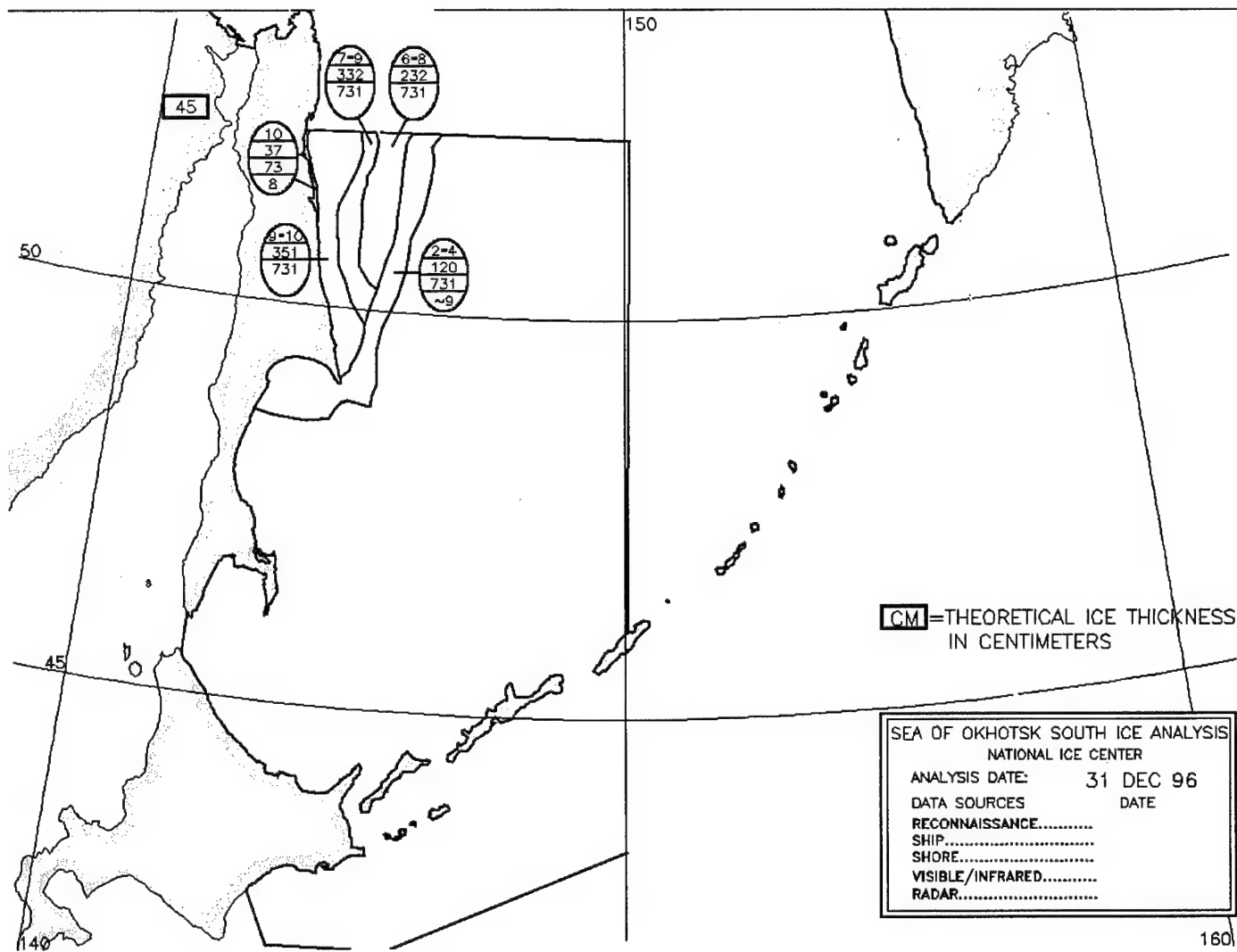








SFA OF OKHOTSK SOUTH ICE ANALYSIS
 NATIONAL ICE CENTER
 ANALYSIS DATE: 24 DEC 96
 DATA SOURCES..... DATE
 RECONNAISSANCE.....
 SHIP.....
 SHORE.....
 VISIBLE/INFRARED..... 22 - 23 DEC
 RADAR.....



KAMCHATKA PENINSULA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 25 OCT 96

DATA SOURCES

DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED.....

RADAR.....

SEA ICE
FREE

SEA ICE
FREE

SEA ICE
FREE

55

50

160

170

KAMCHATKA PENINSULA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 29 OCT 96

DATA SOURCES

DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED.....

RADAR.....

SEA ICE
FREE

SEA ICE
FREE

55

50

SEA ICE
FREE

160

170

KAMCHATKA PENINSULA ICE ANALYSIS
NATIONAL ICE CENTER

ANALYSIS DATE: 1 NOV 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED.....

RADAR.....

SEA ICE FREE

SEA ICE FREE

SEA ICE FREE

55

50

160

170

KAMCHATKA PENINSULA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 5 NOV 96

DATA SOURCES

DATE

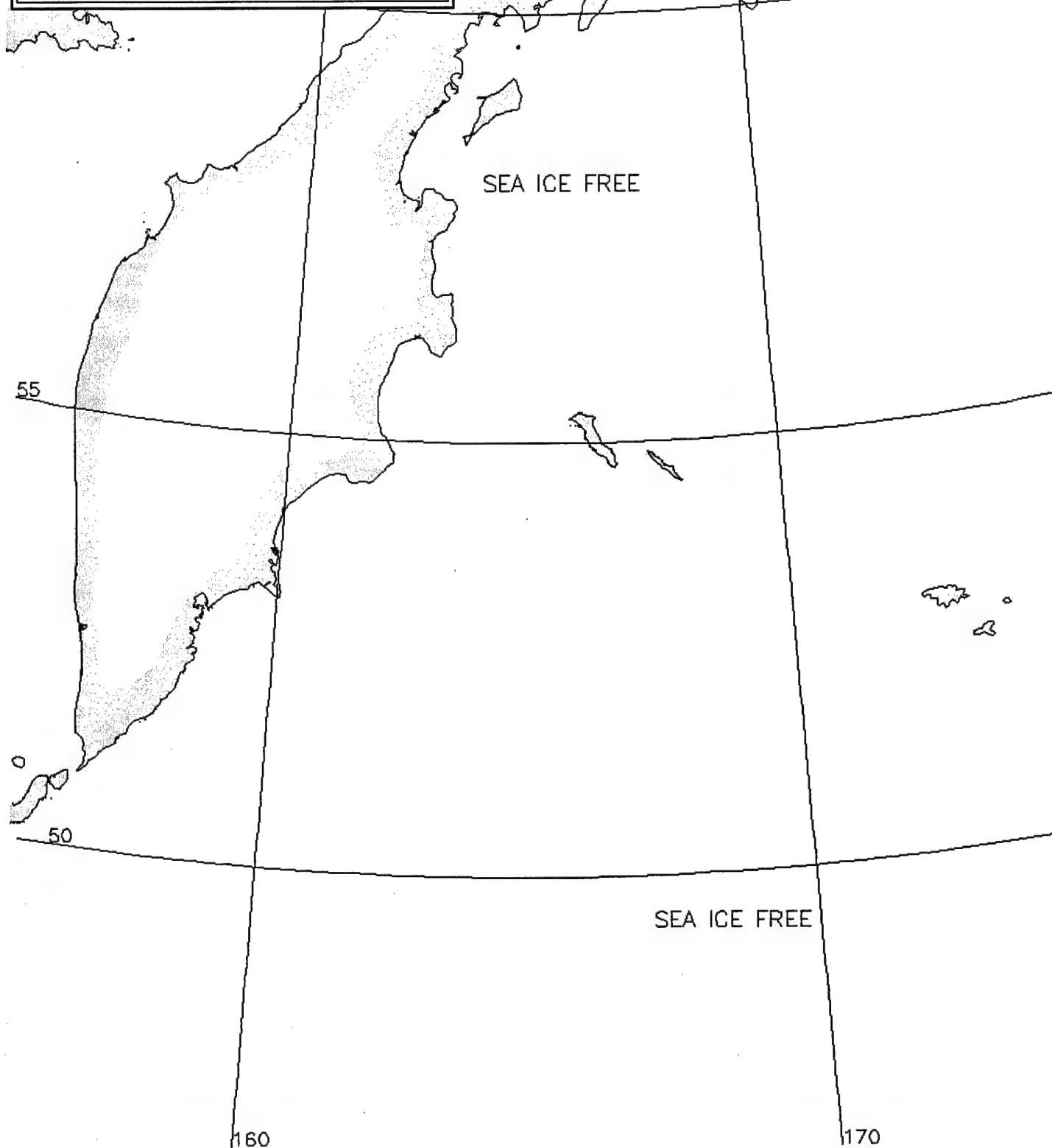
RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED.....

RADAR.....



KAMCHATKA PENINSULA ICE ANALYSIS
NATIONAL ICE CENTER

ANALYSIS DATE: 12 NOV 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED.....

RADAR.....

55

SEA ICE FREE

50

160

170

KAMCHATKA PENINSULA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 19 NOV 96

DATA SOURCES

DATE

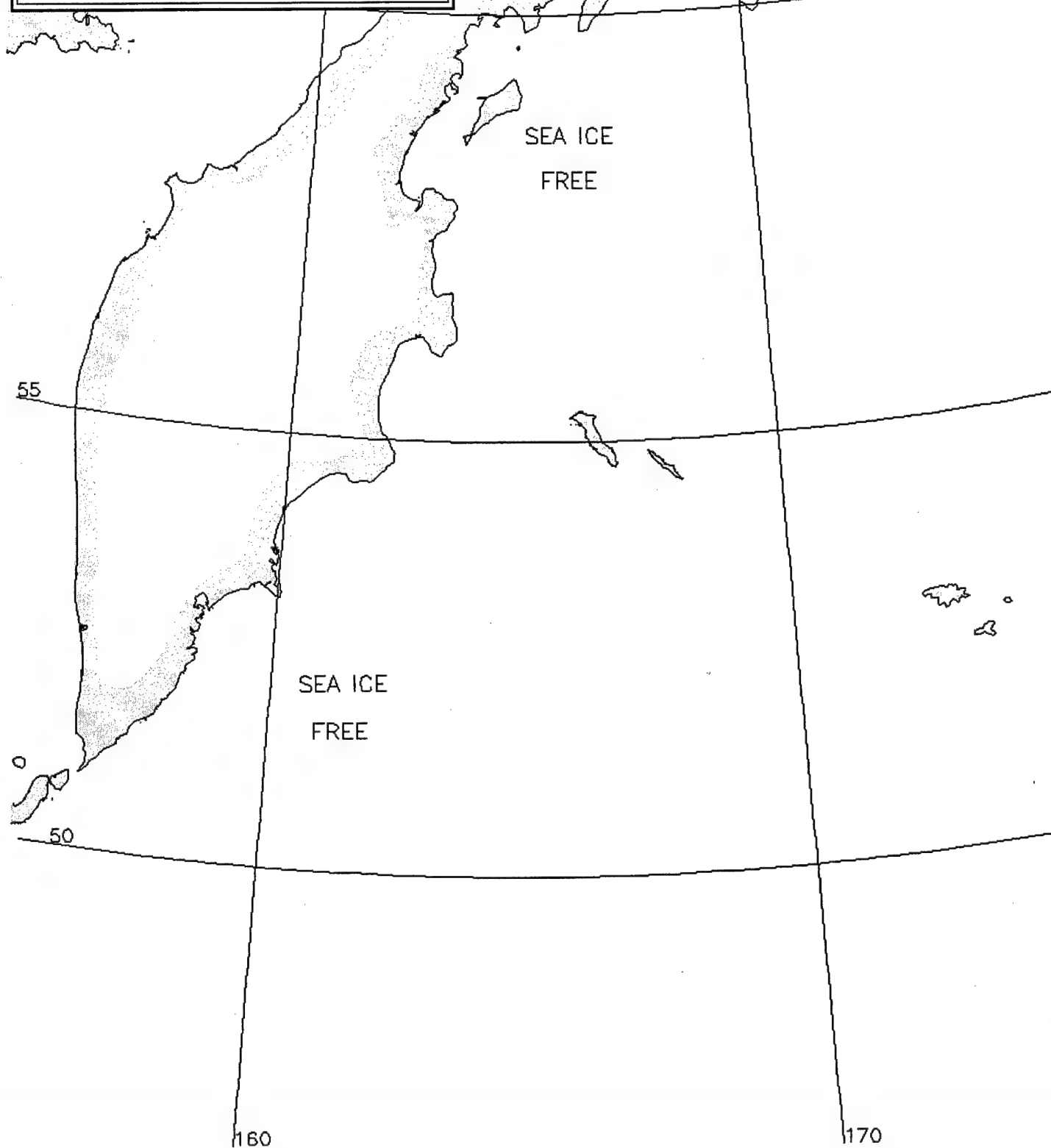
RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED.....

RADAR.....



KAMCHATKA PENINSULA ICE ANALYSIS
NATIONAL ICE CENTER

ANALYSIS DATE: 26 NOV 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 25 NOV

RADAR.....



55

SEA ICE FREE

50

160

170

KAMCHATKA PENINSULA ICE ANALYSIS
NATIONAL ICE CENTER

ANALYSIS DATE: 3 DEC 96

DATA SOURCES DATE

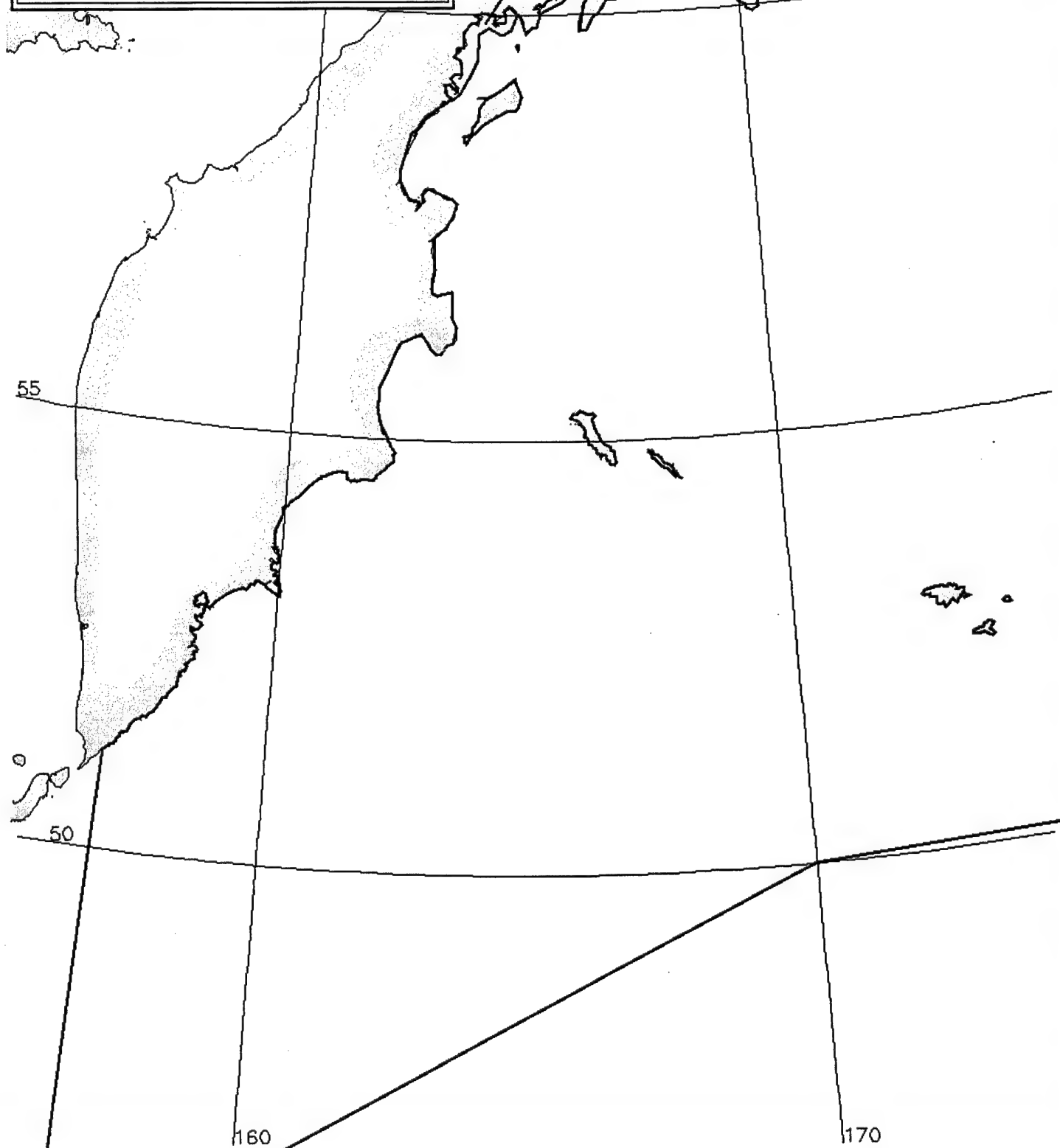
RECONNAISSANCE.....

SHIP.....

SHORE.....

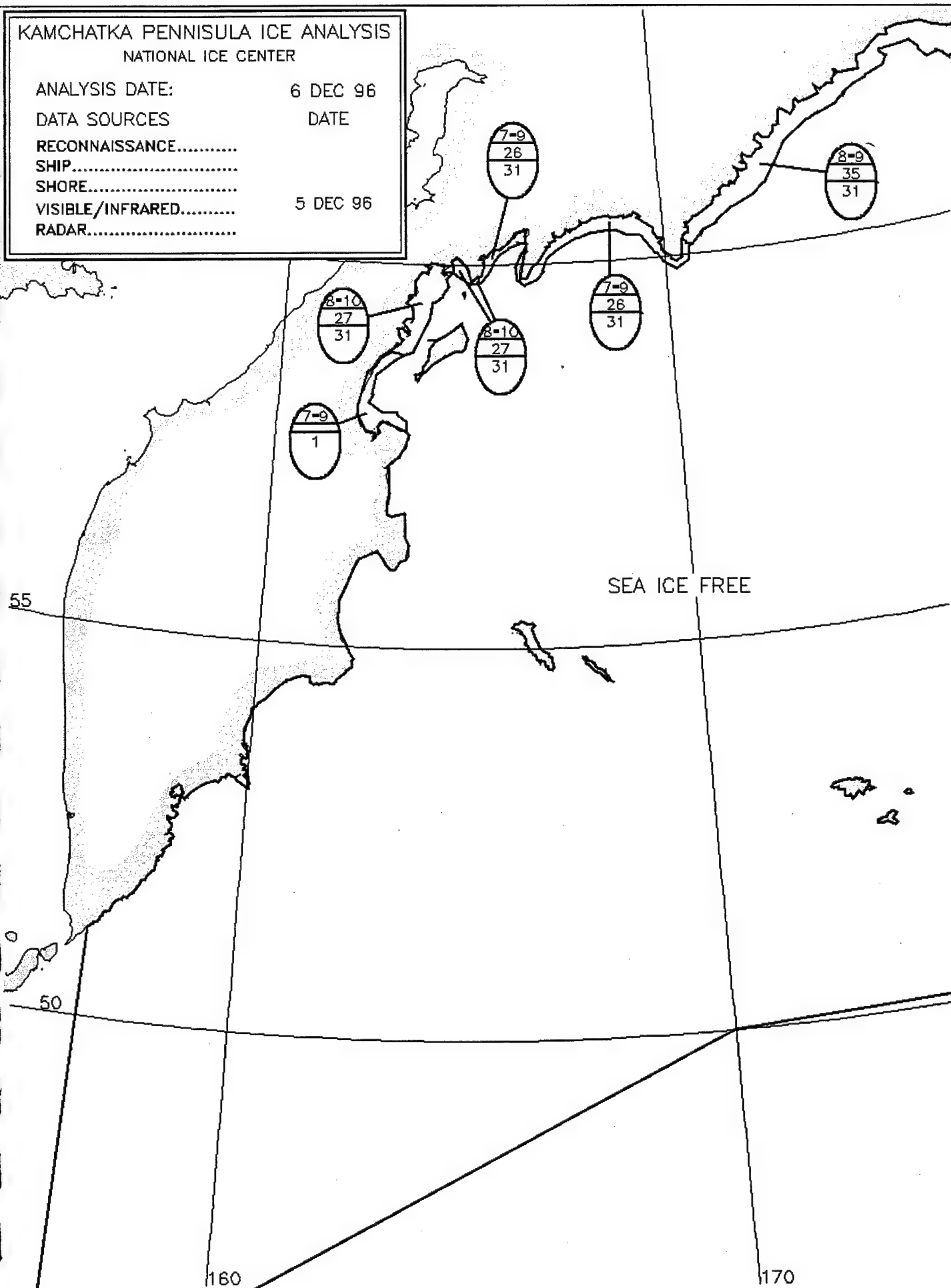
VISIBLE/INFRARED.....

RADAR.....



KAMCHATKA PENINSULA ICE ANALYSIS
NATIONAL ICE CENTER

ANALYSIS DATE: 6 DEC 96
DATA SOURCES DATE
RECONNAISSANCE.....
SHIP.....
SHORE.....
VISIBLE/INFRARED..... 5 DEC 96
RADAR.....



KAMCHATKA PENINSULA ICE ANALYSIS
NATIONAL ICE CENTER

ANALYSIS DATE: 10 DEC 96

DATA SOURCES DATE

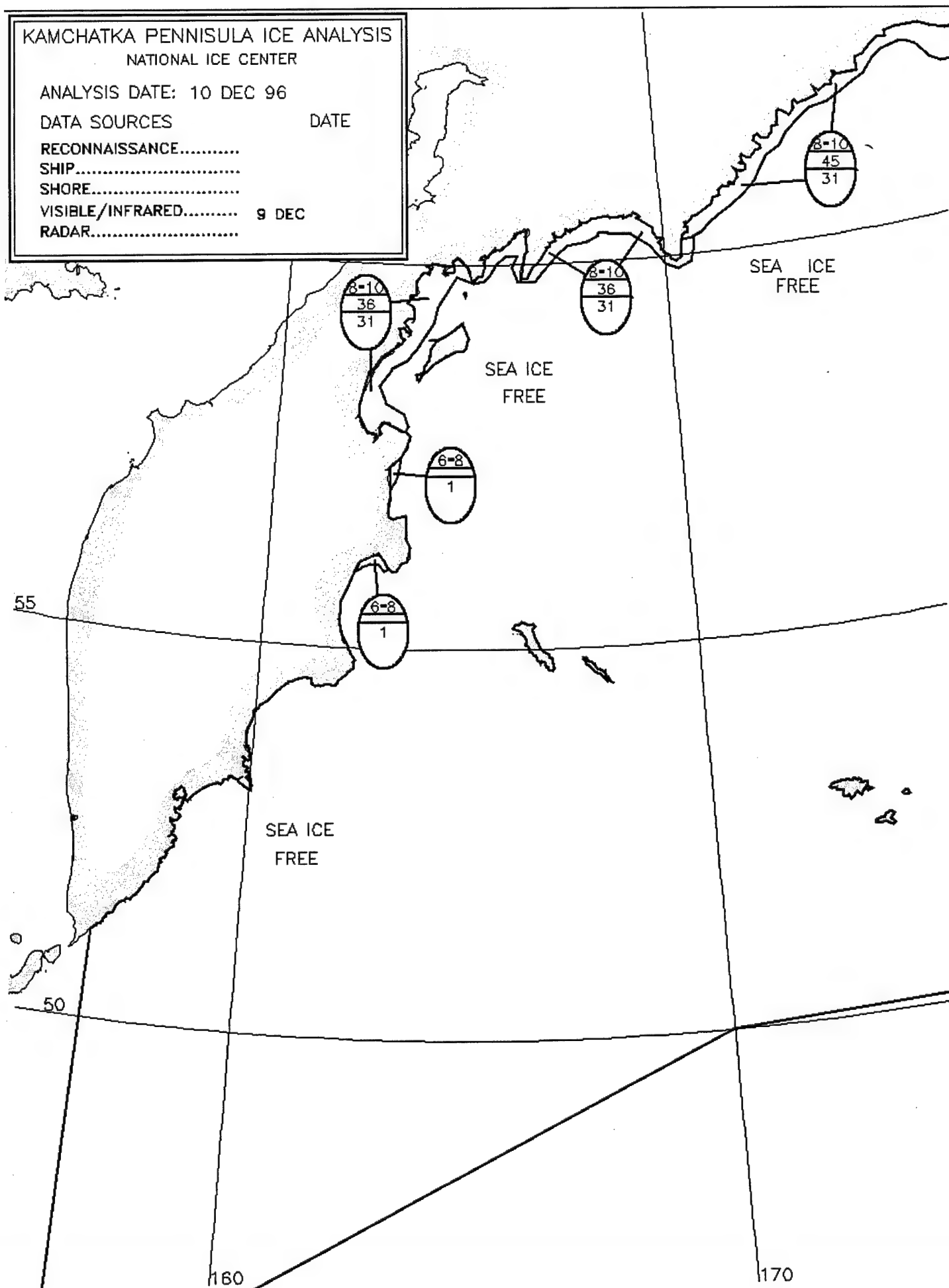
RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 9 DEC

RADAR.....



KAMCHATKA PENINSULA ICE ANALYSIS
NATIONAL ICE CENTER

ANALYSIS DATE: 13 DEC 96

DATA SOURCES DATE

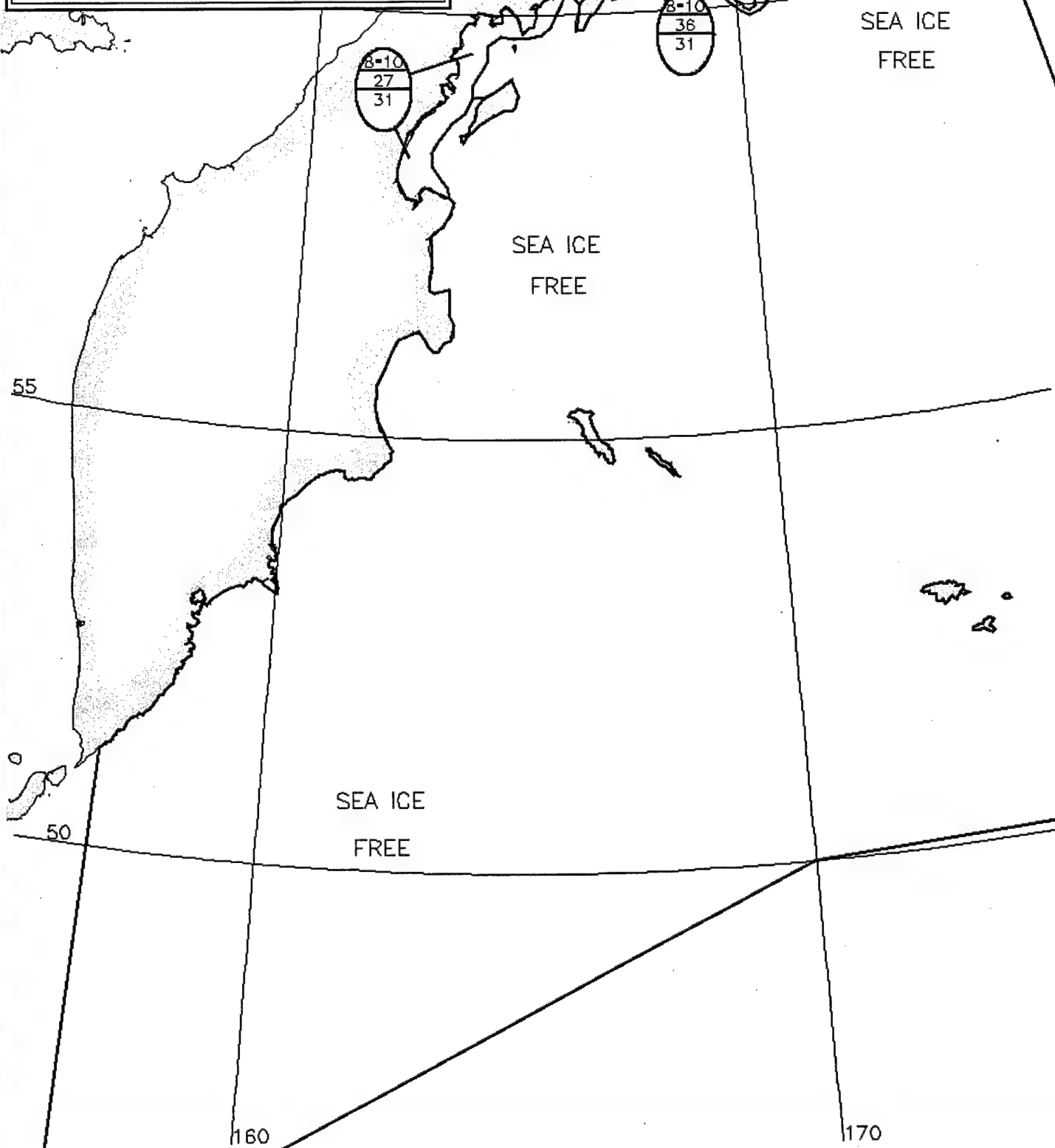
RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 12 DEC

RADAR.....



KAMCHATKA PENINSULA ICE ANALYSIS
NATIONAL ICE CENTER

ANALYSIS DATE: 17 DEC 96

DATA SOURCES DATE

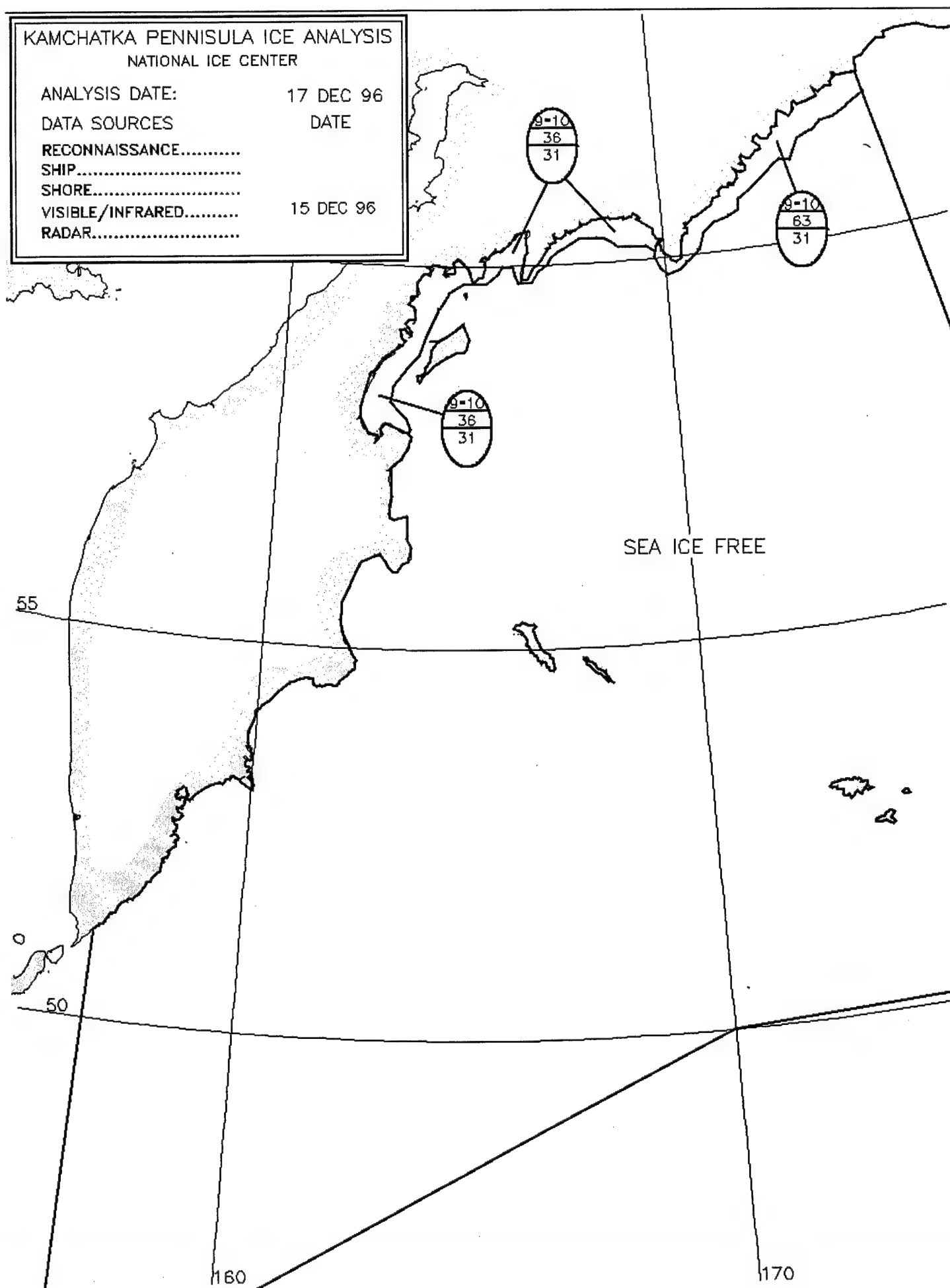
RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 15 DEC 96

RADAR.....



KAMCHATKA PENINSULA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 20 DEC 96

DATA SOURCES

DATE

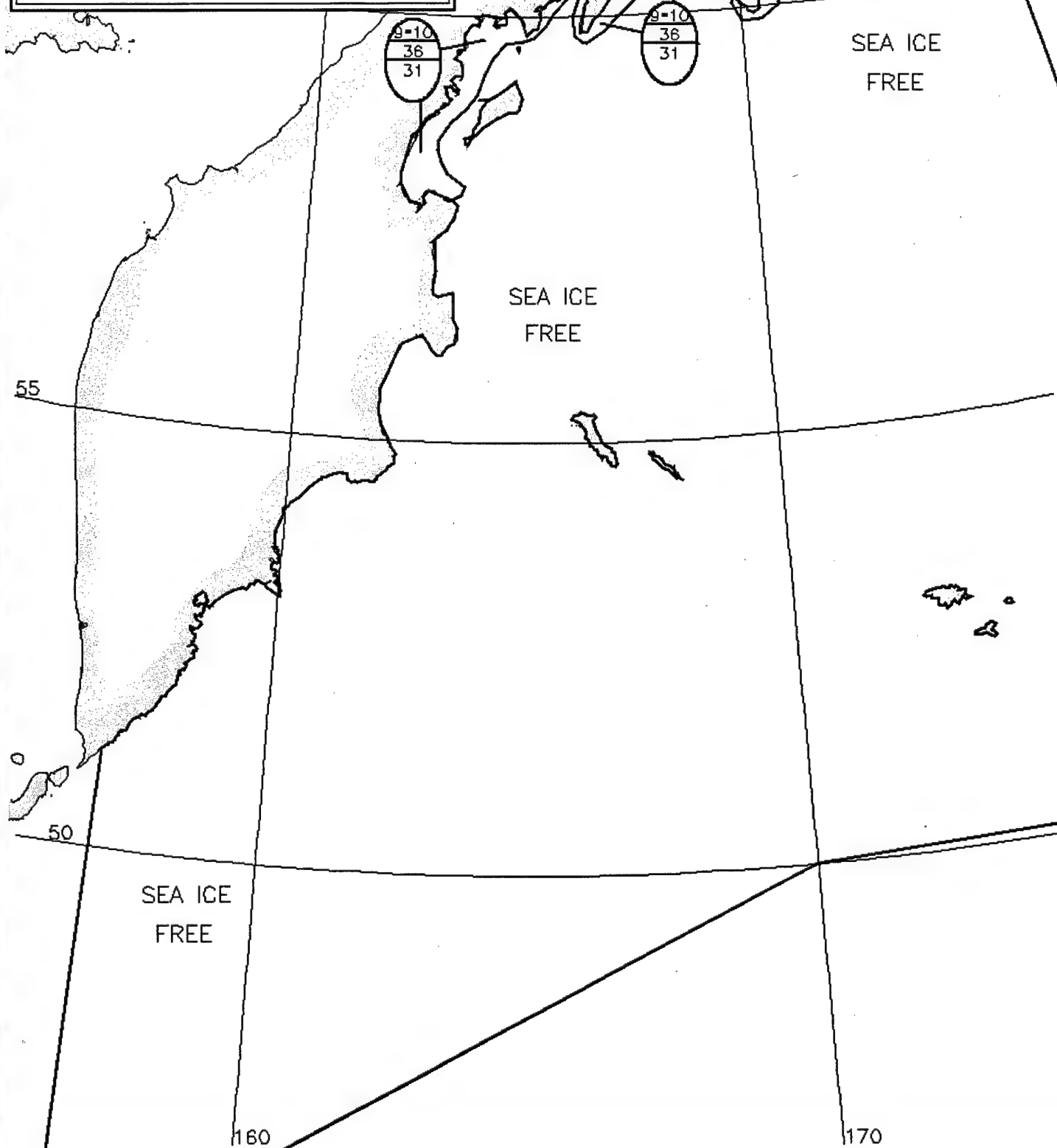
RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED.....

RADAR.....



KAMCHATKA PENINSULA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 24 DEC 96

DATA SOURCES DATE

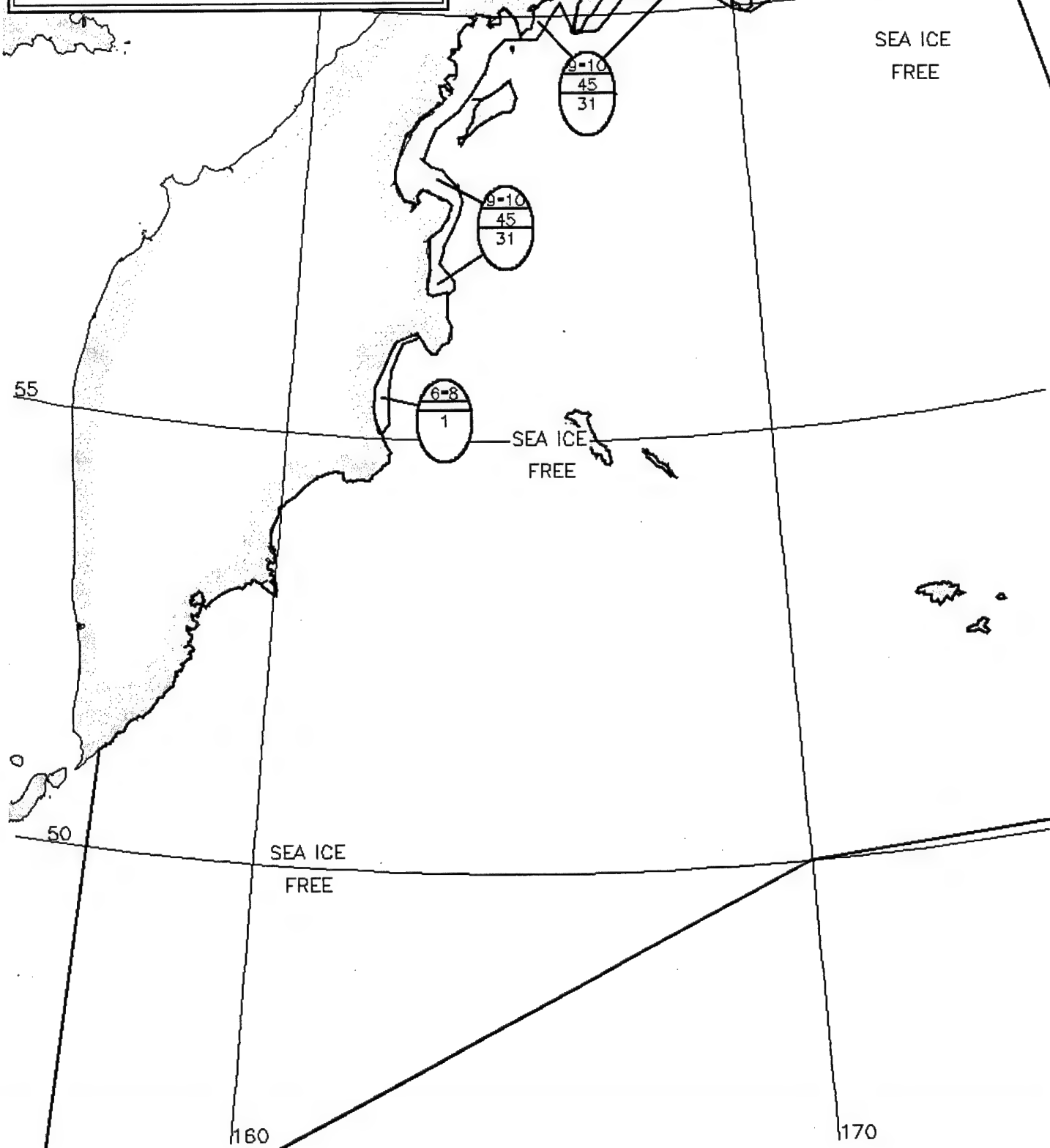
RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 22 - 23 DEC

RADAR.....



KAMCHATKA PENINSULA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 27 DEC 96

DATA SOURCES DATE

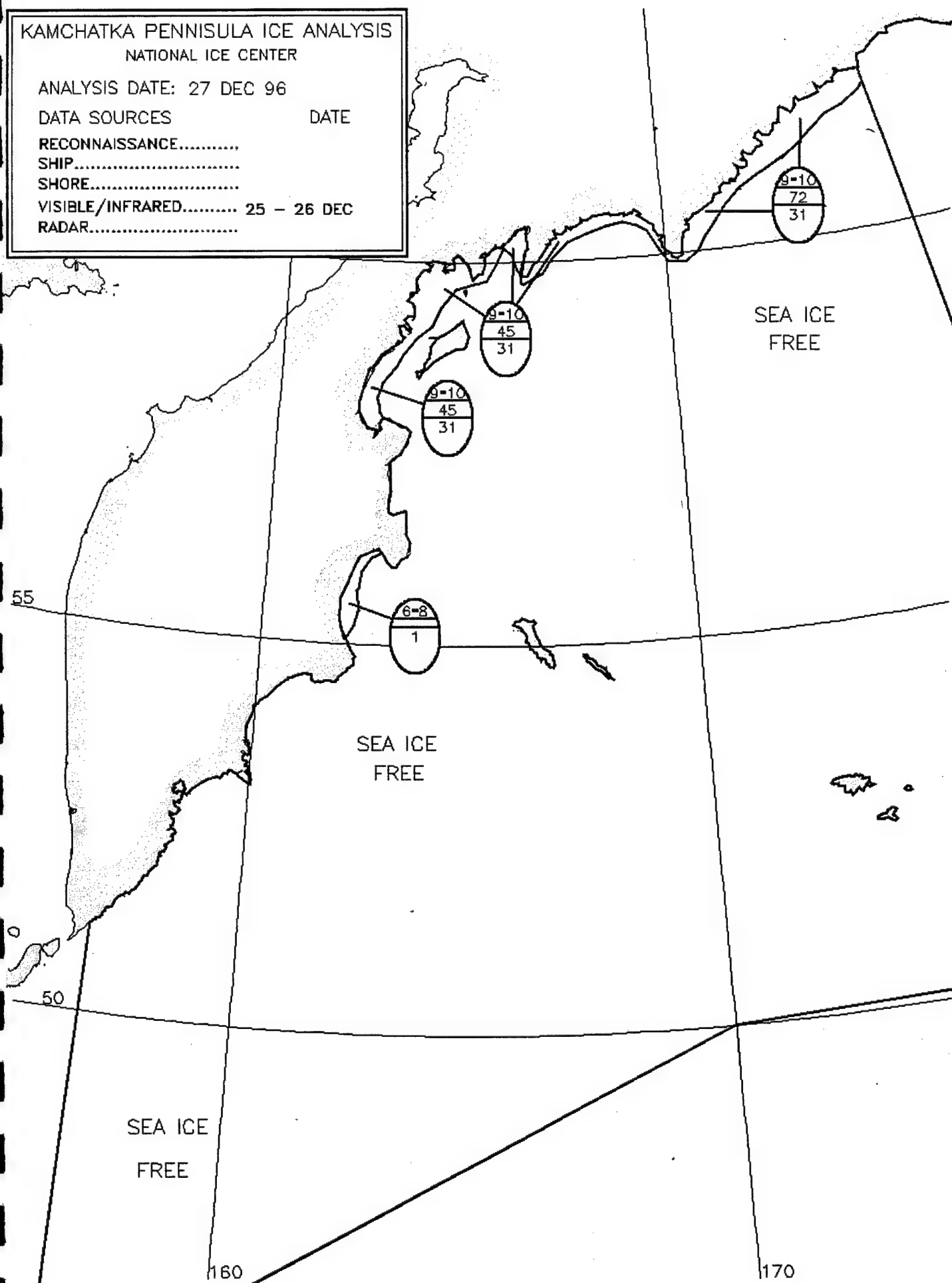
RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 25 - 26 DEC

RADAR.....



KAMCHATKA PENINSULA ICE ANALYSIS
NATIONAL ICE CENTER

ANALYSIS DATE: 31 DEC 96

DATA SOURCES DATE

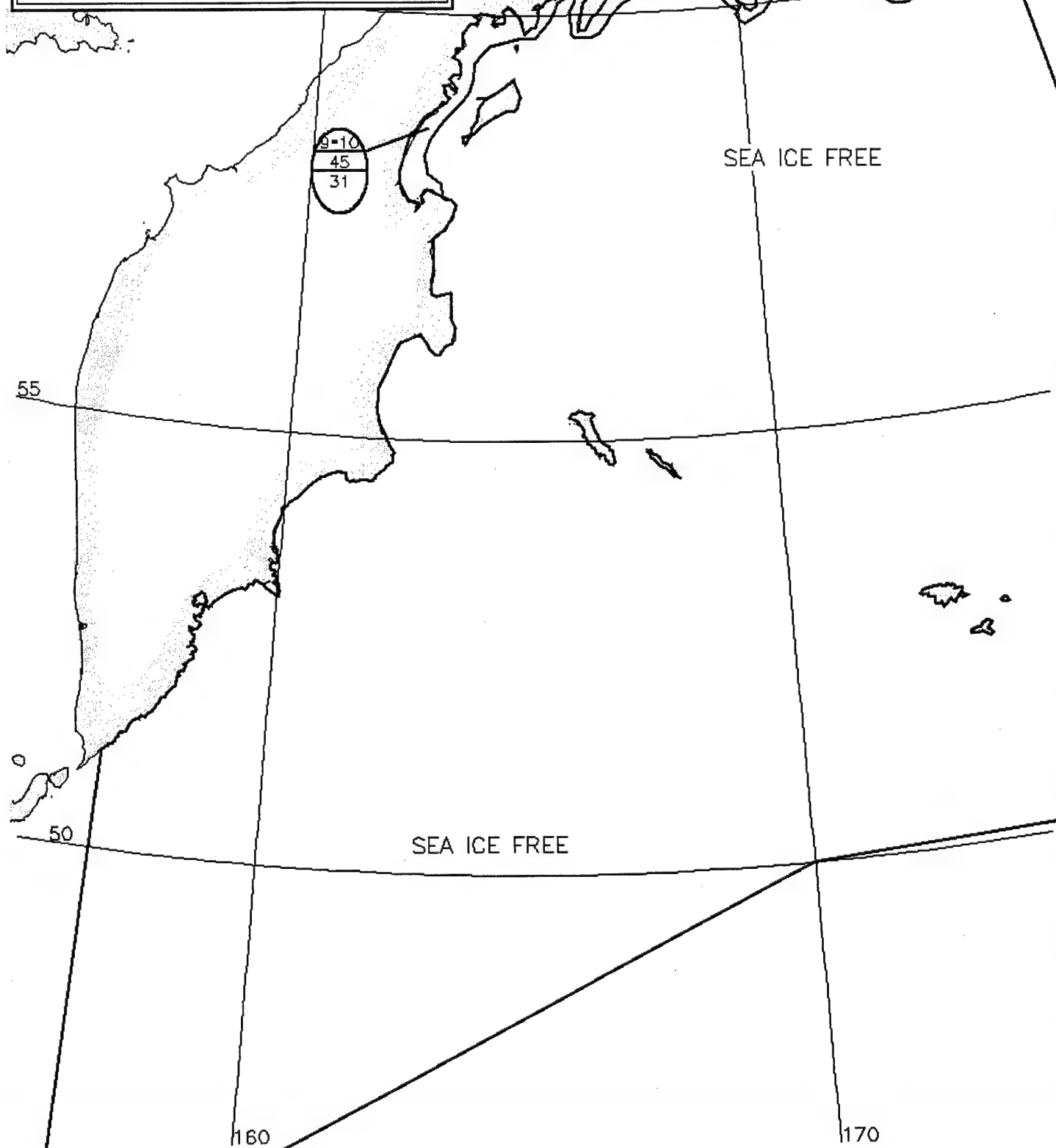
RECONNAISSANCE.....

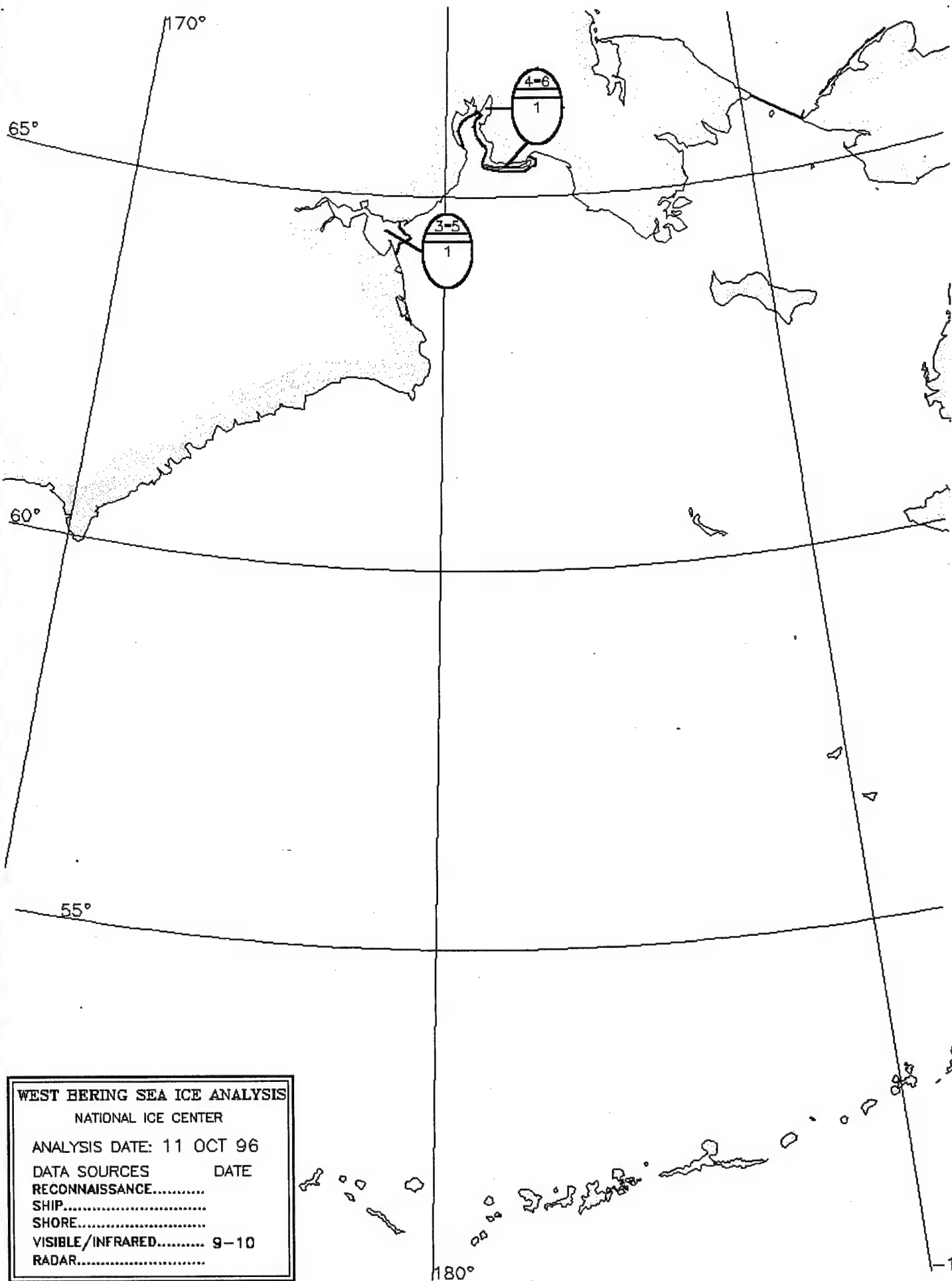
SHIP.....

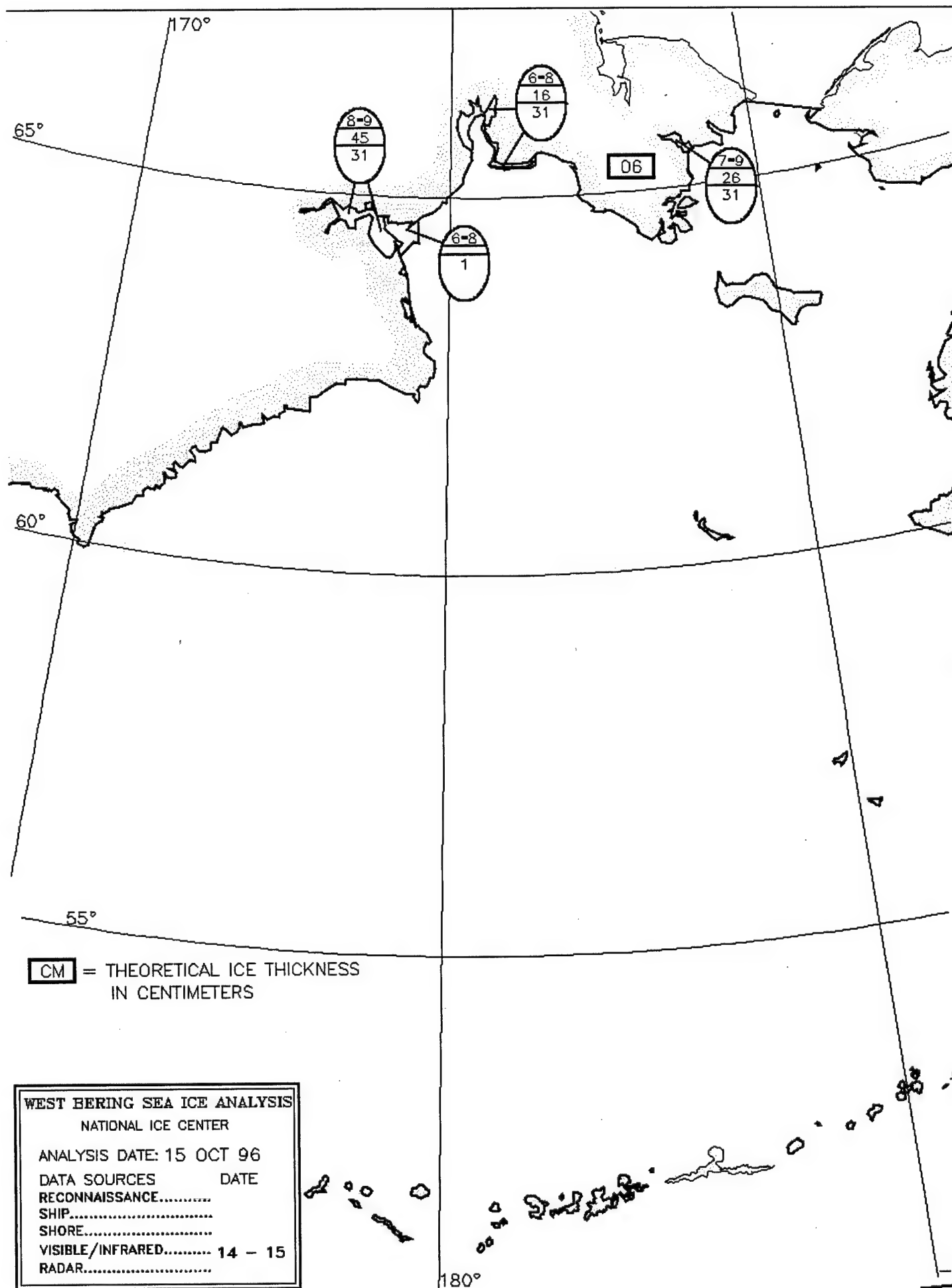
SHORE.....

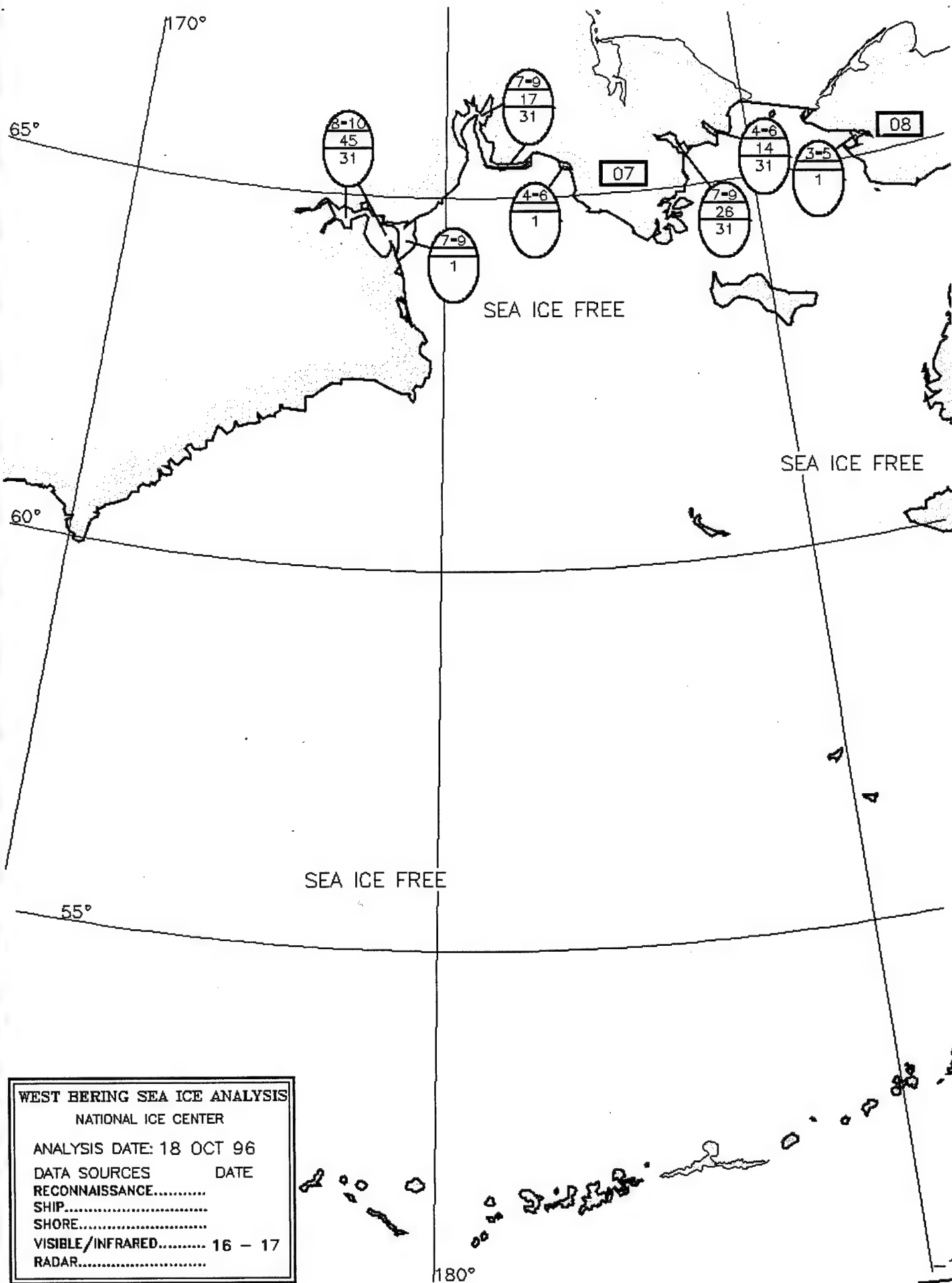
VISIBLE/INFRARED..... 26 DEC 96

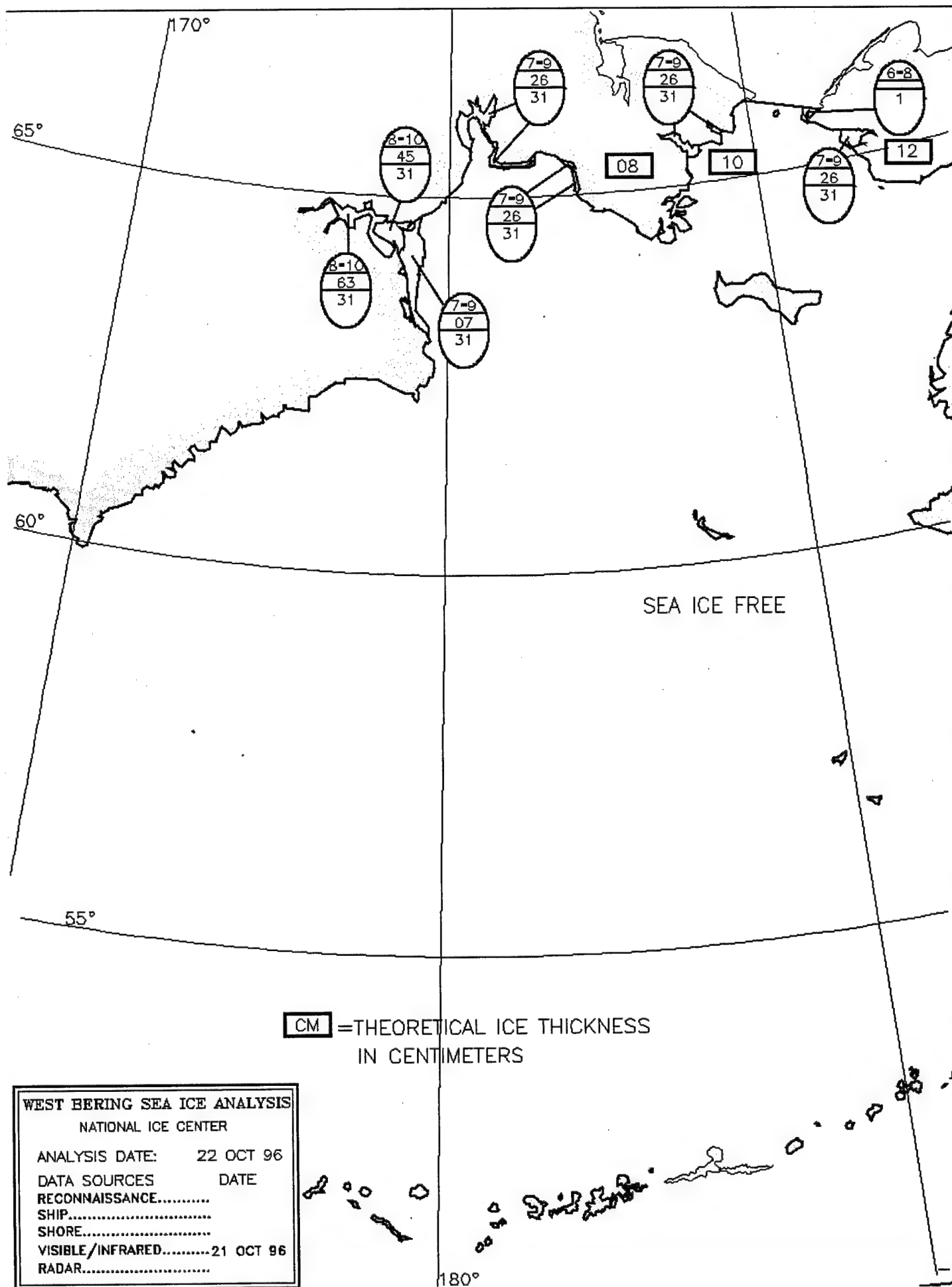
RADAR.....

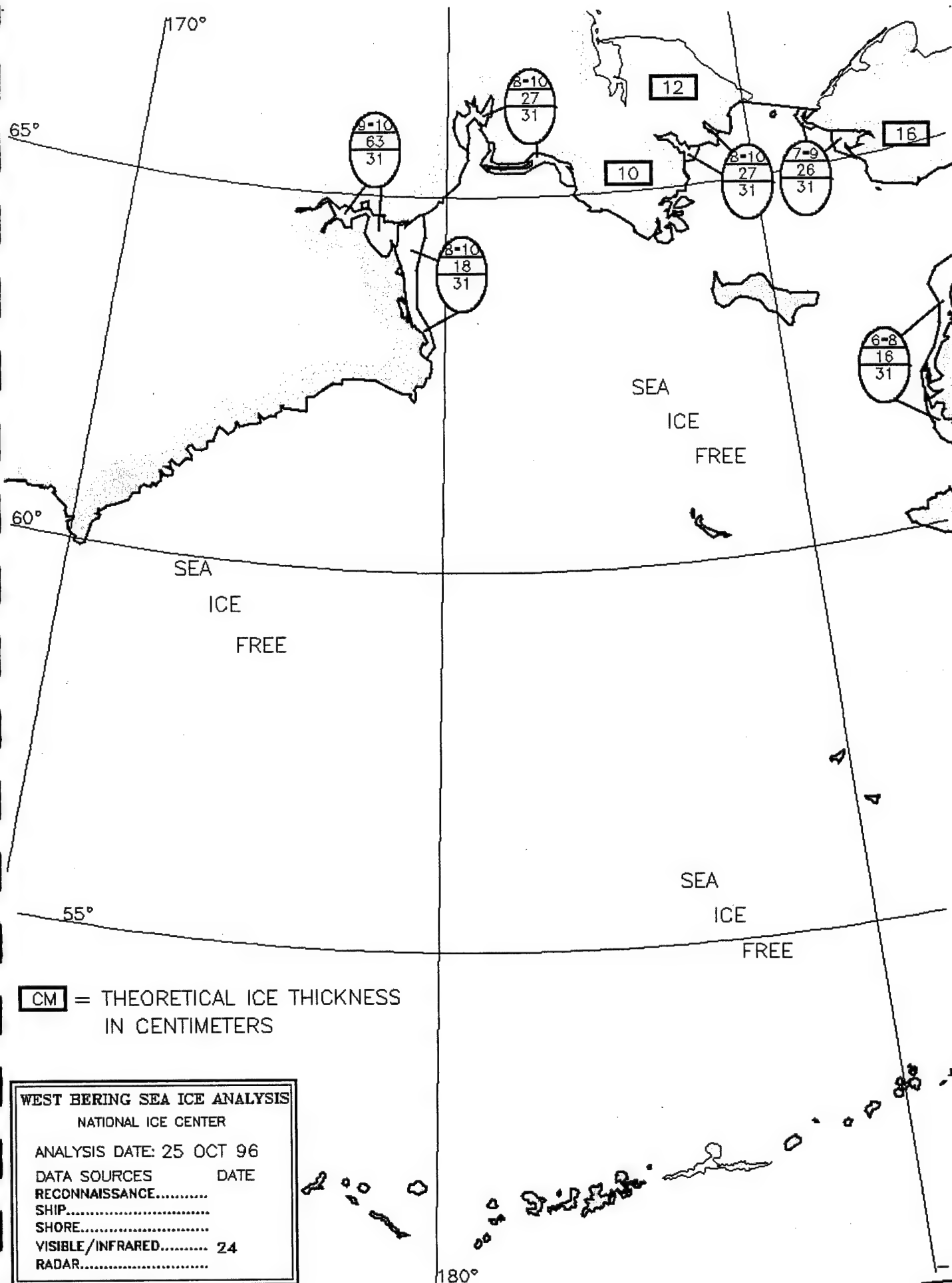


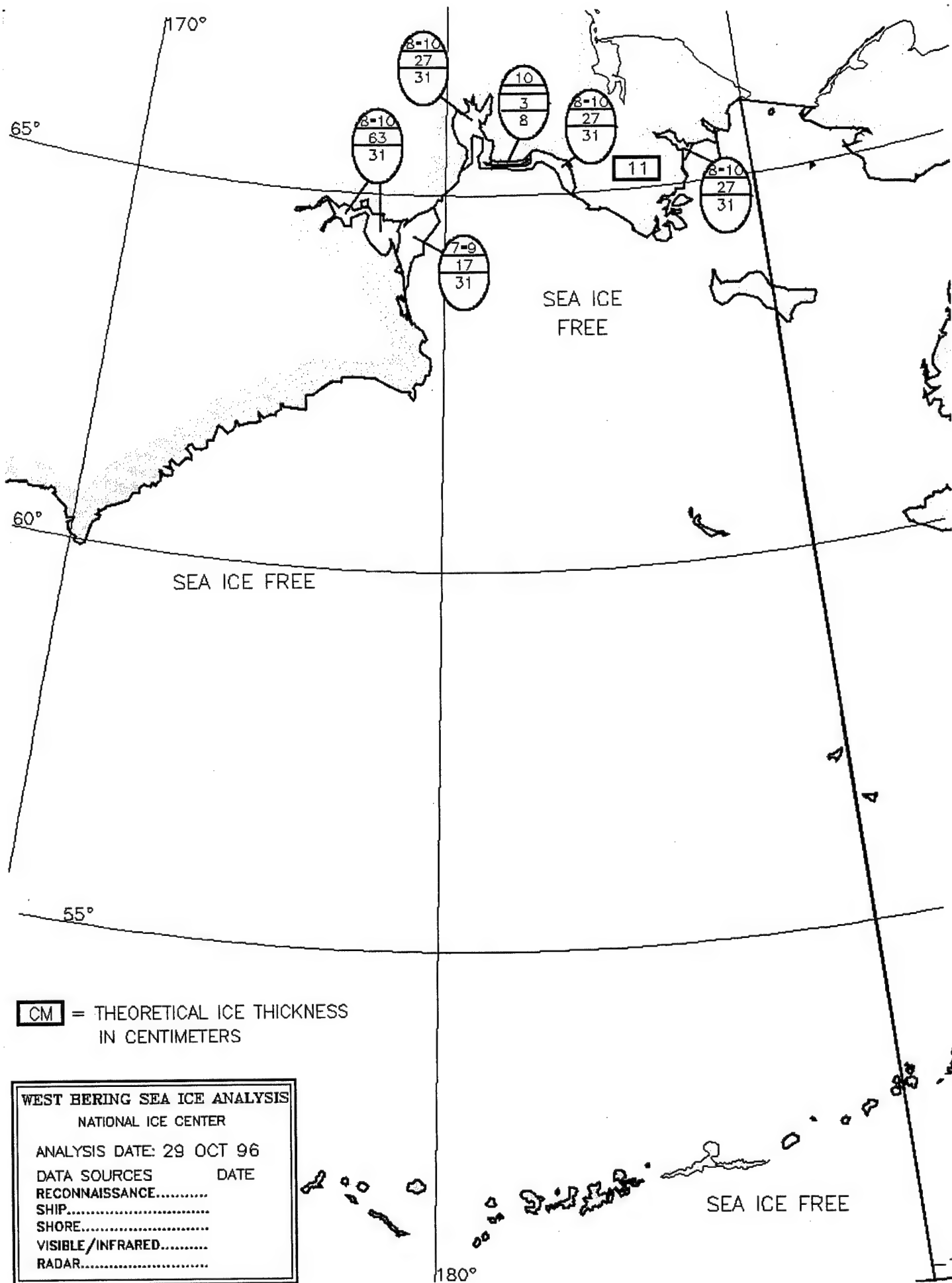


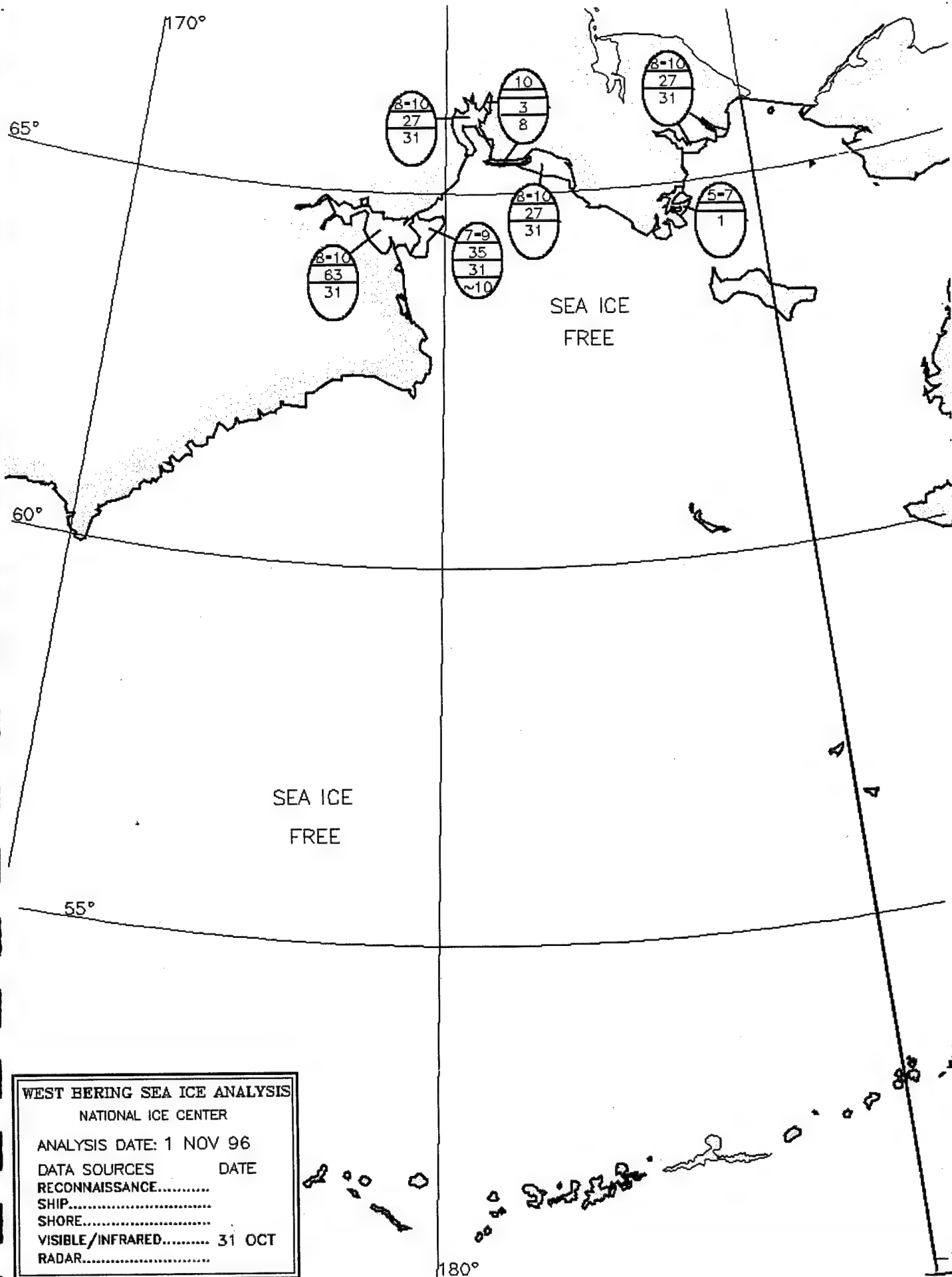


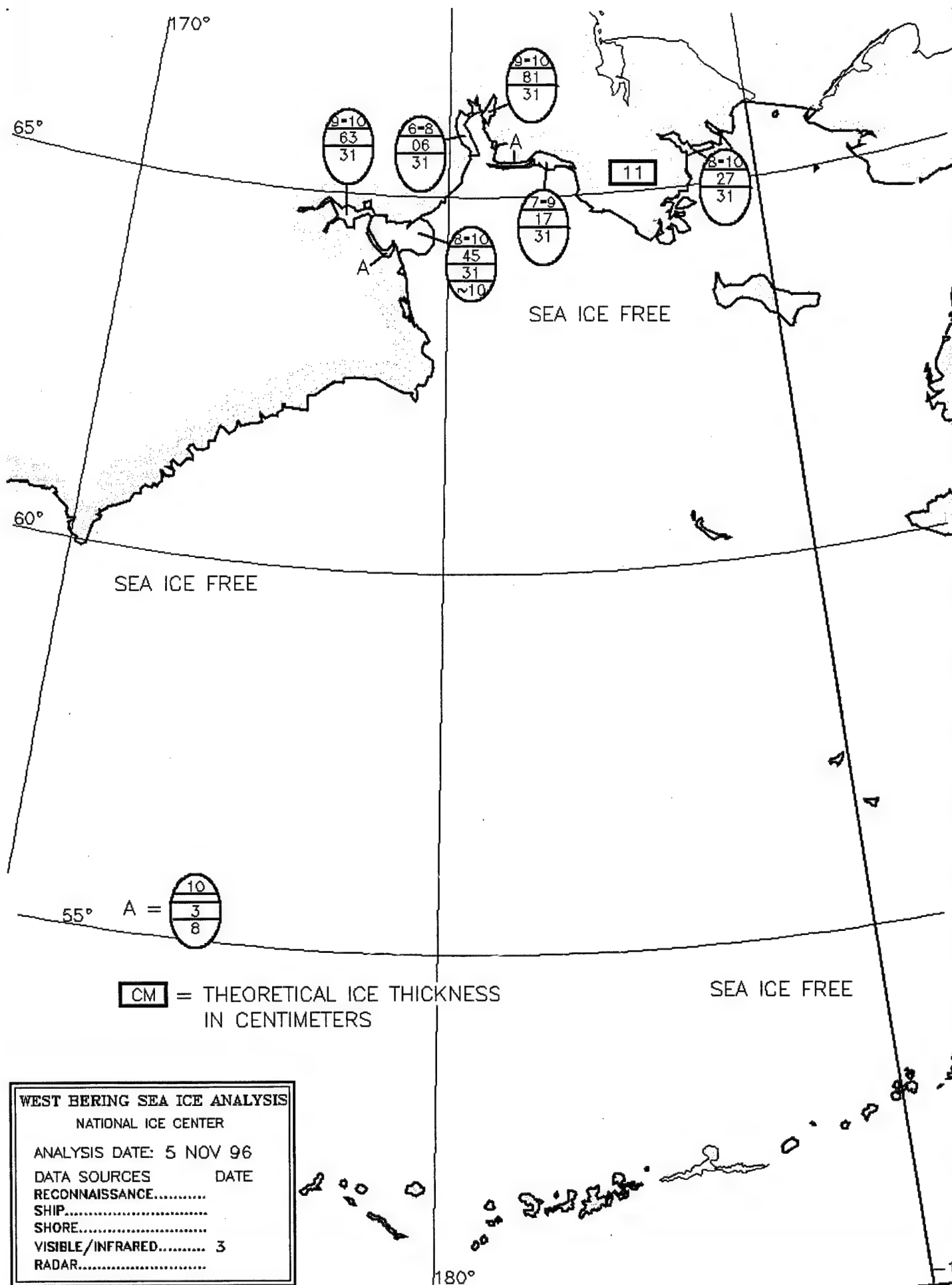


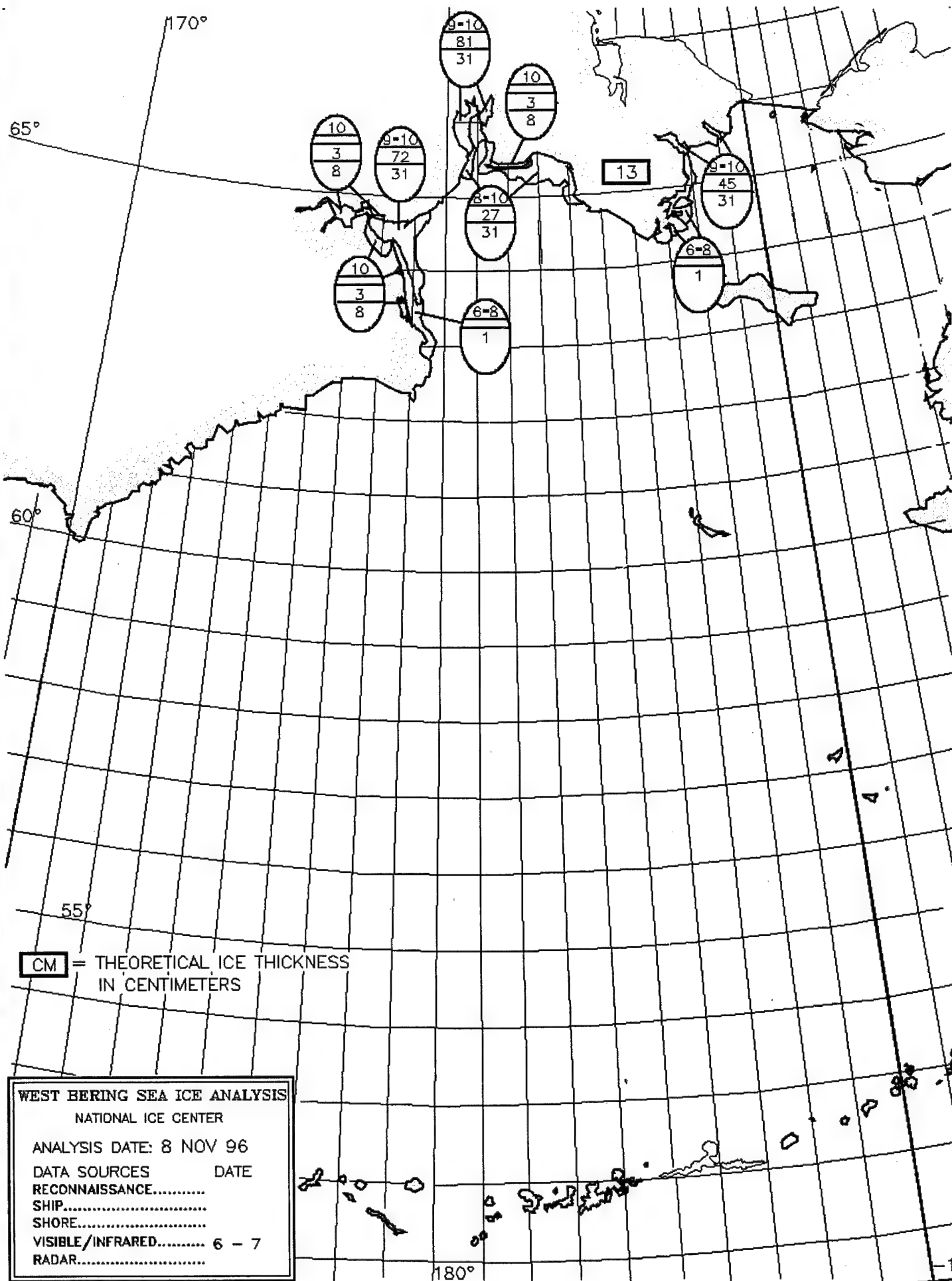


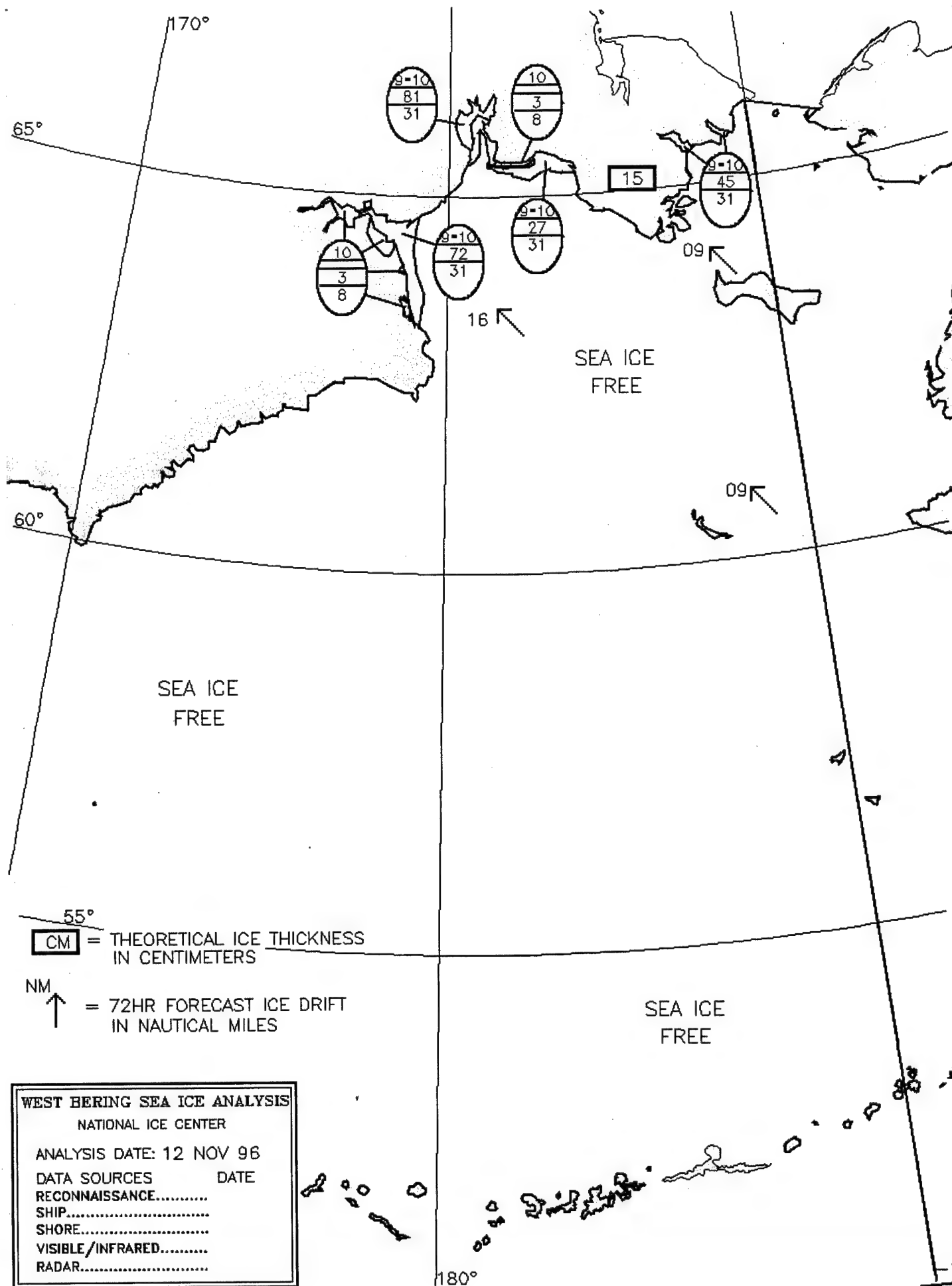


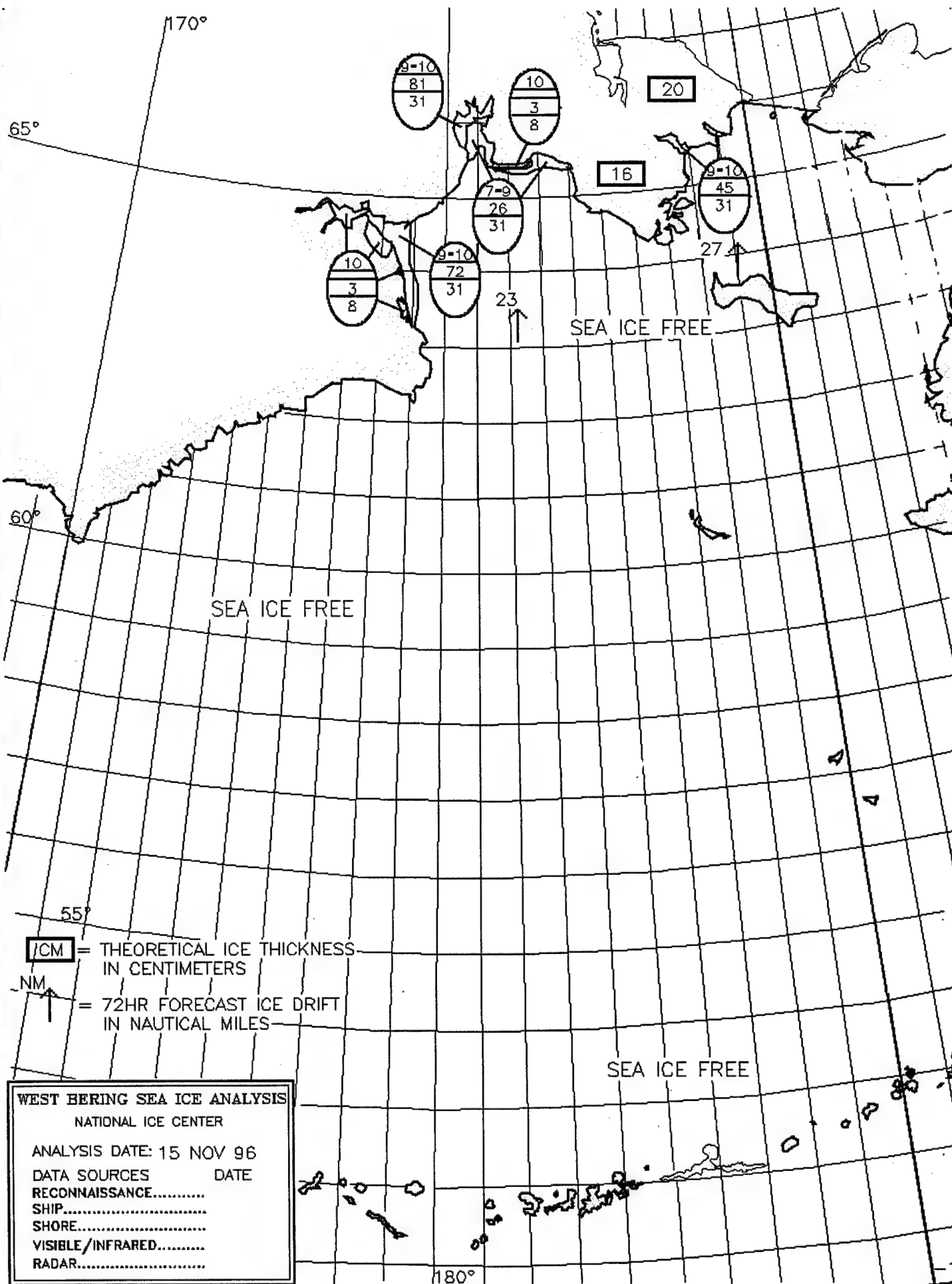


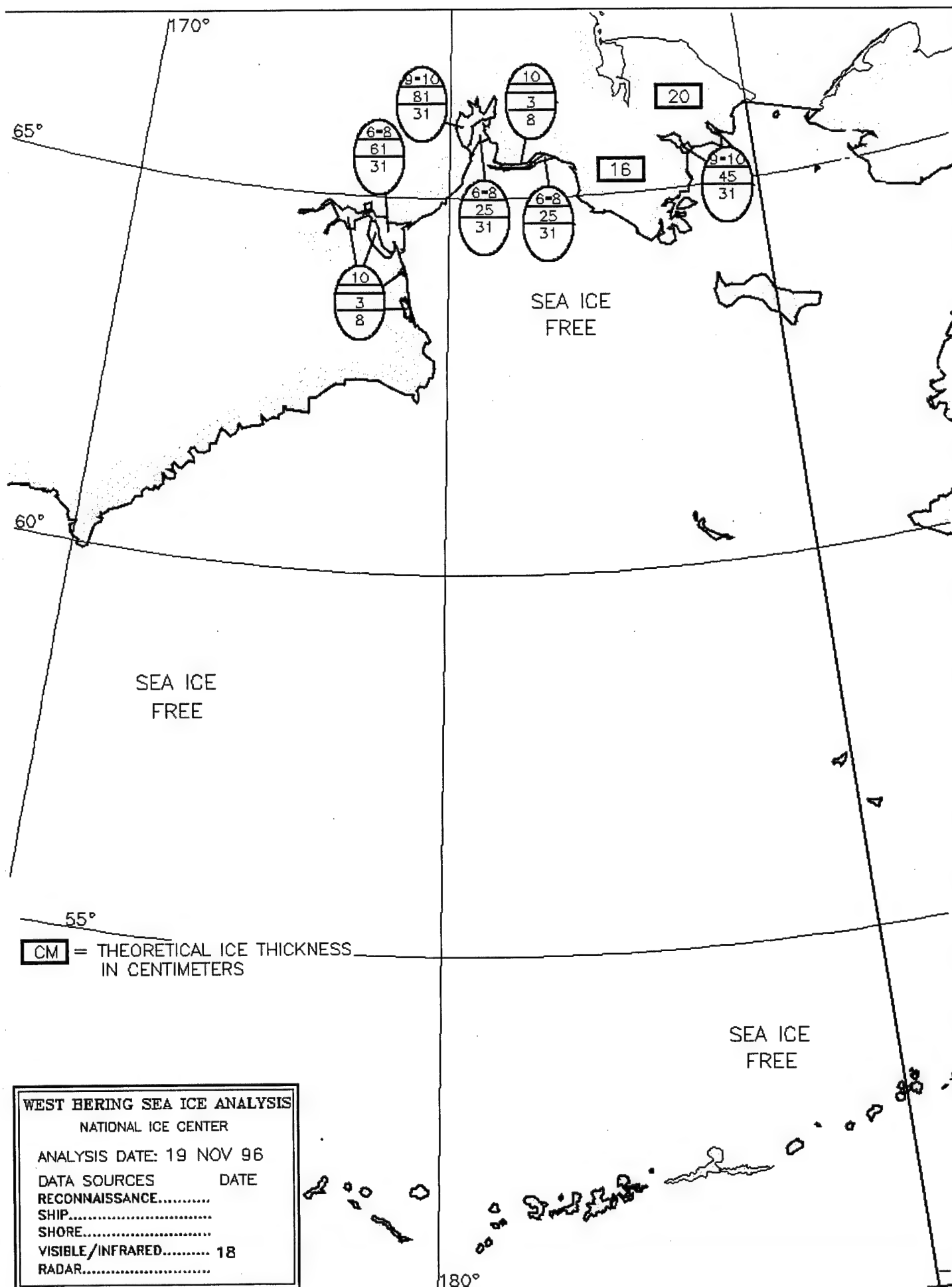


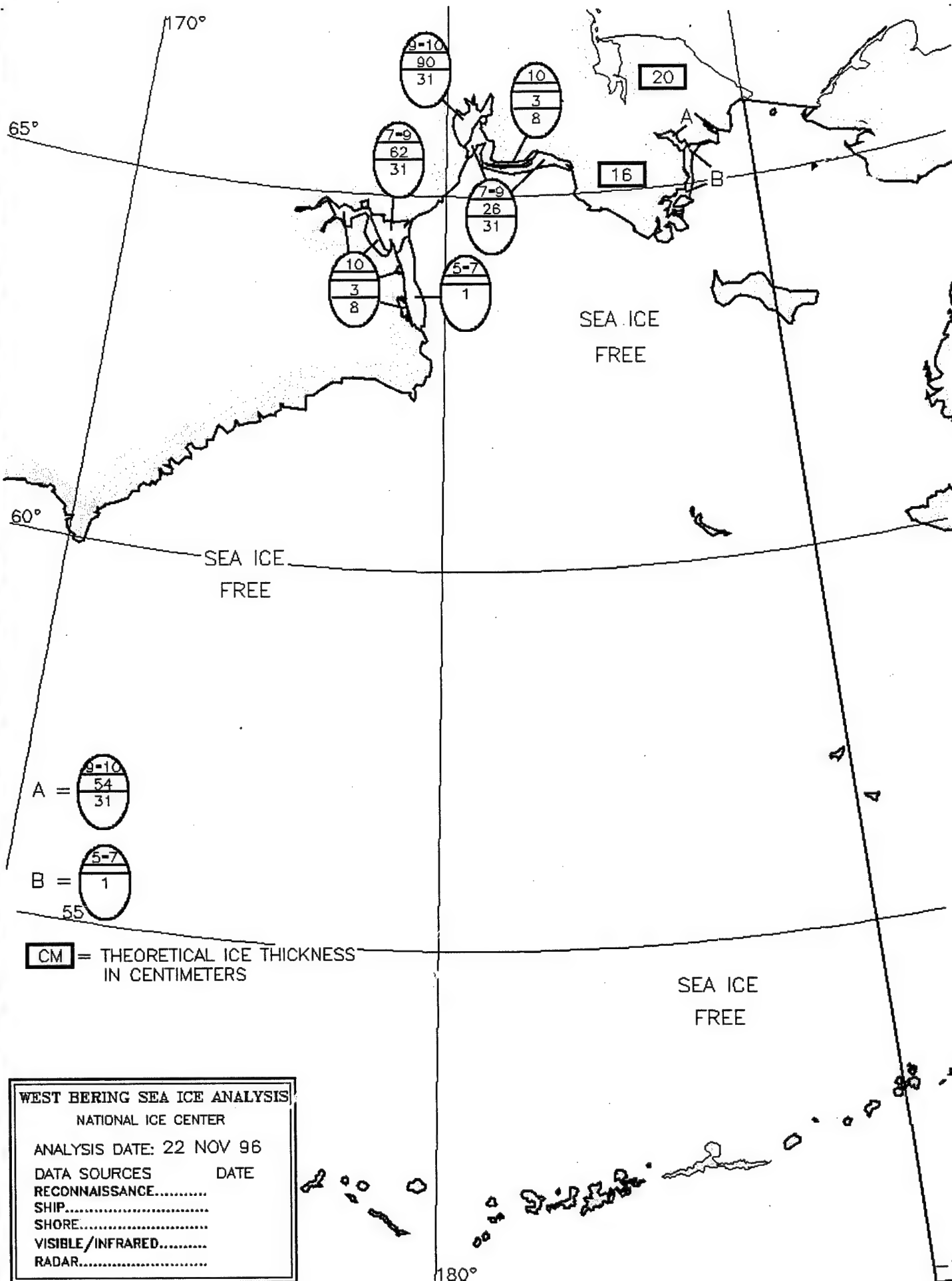


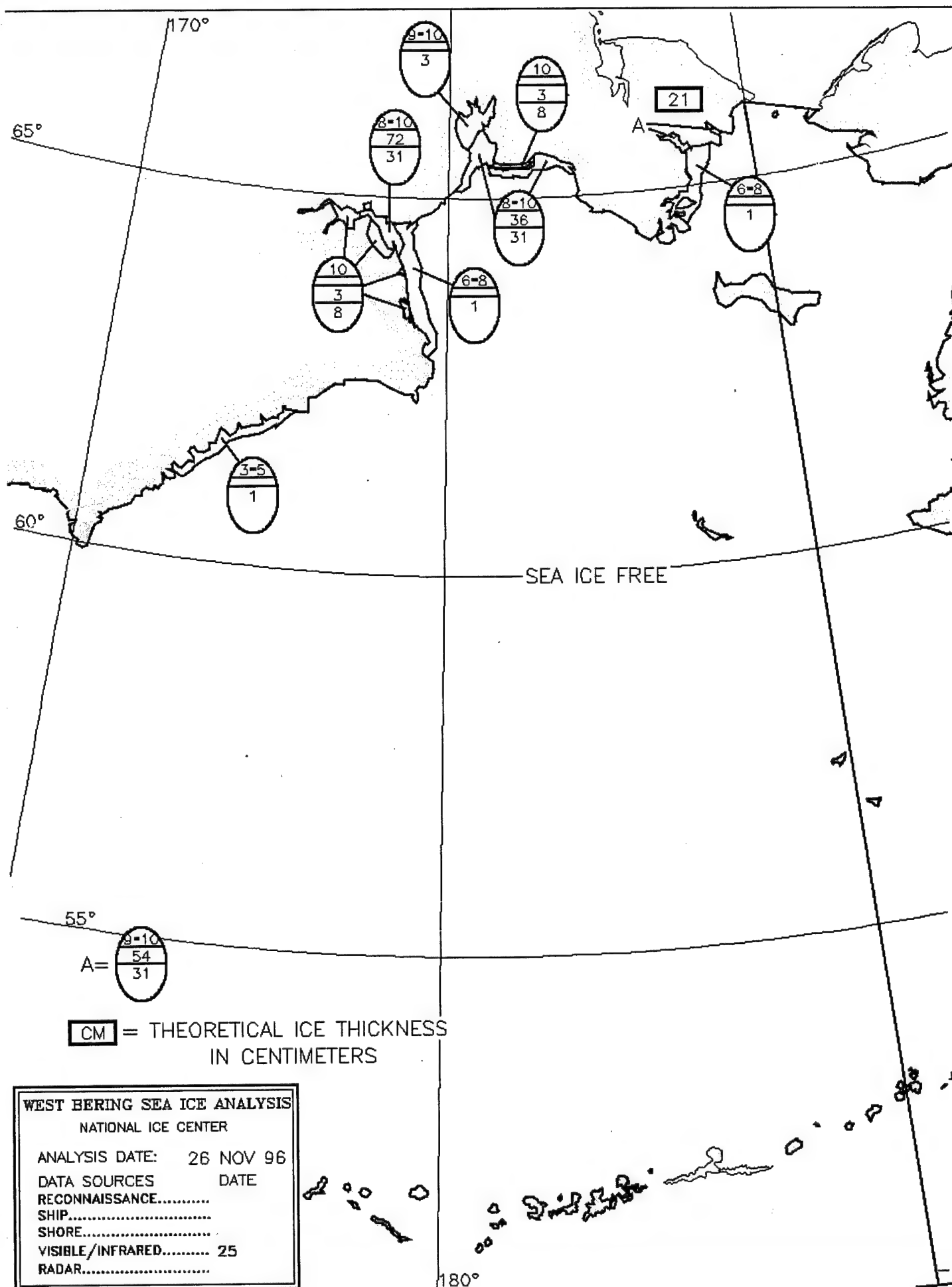


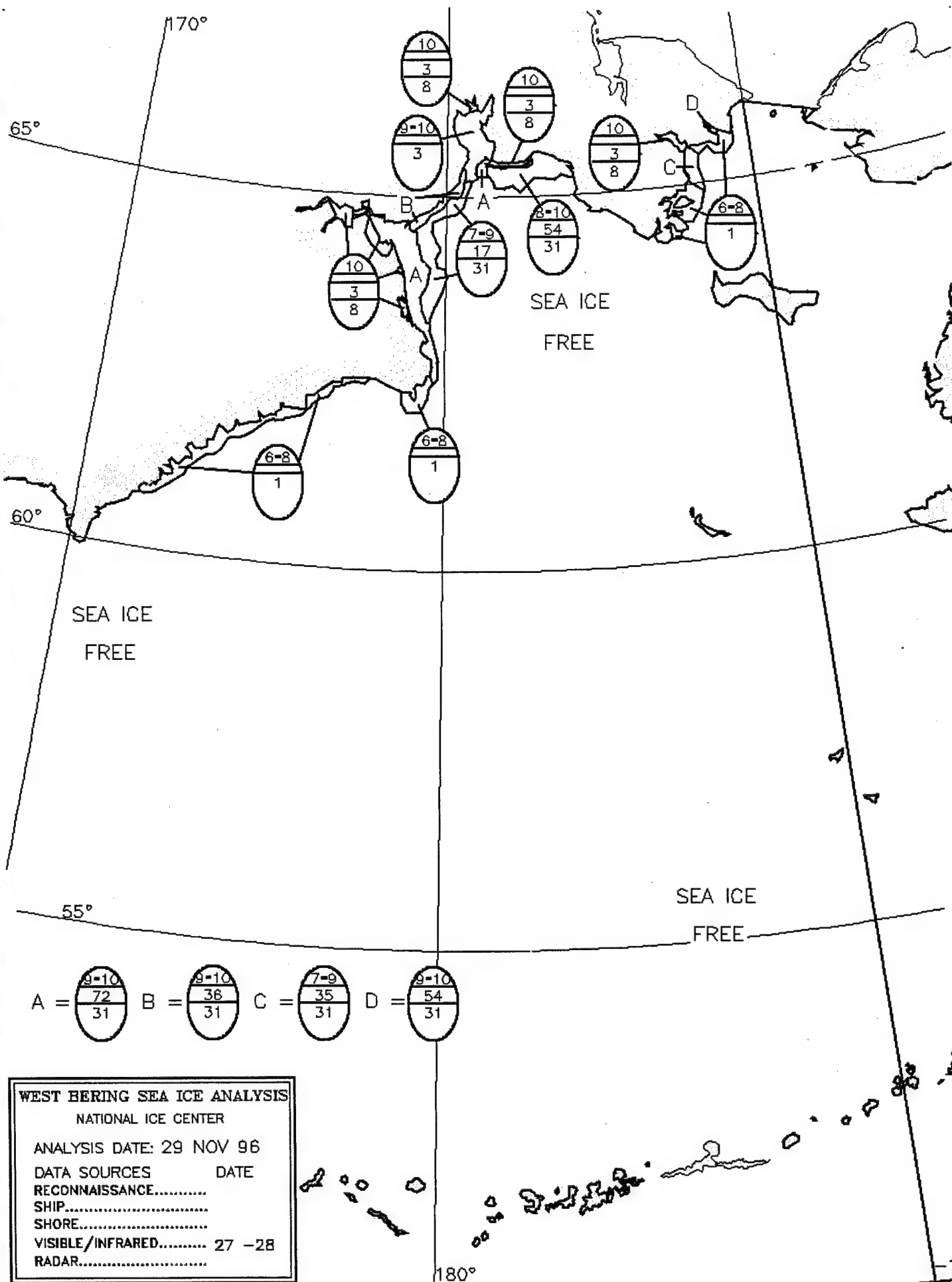


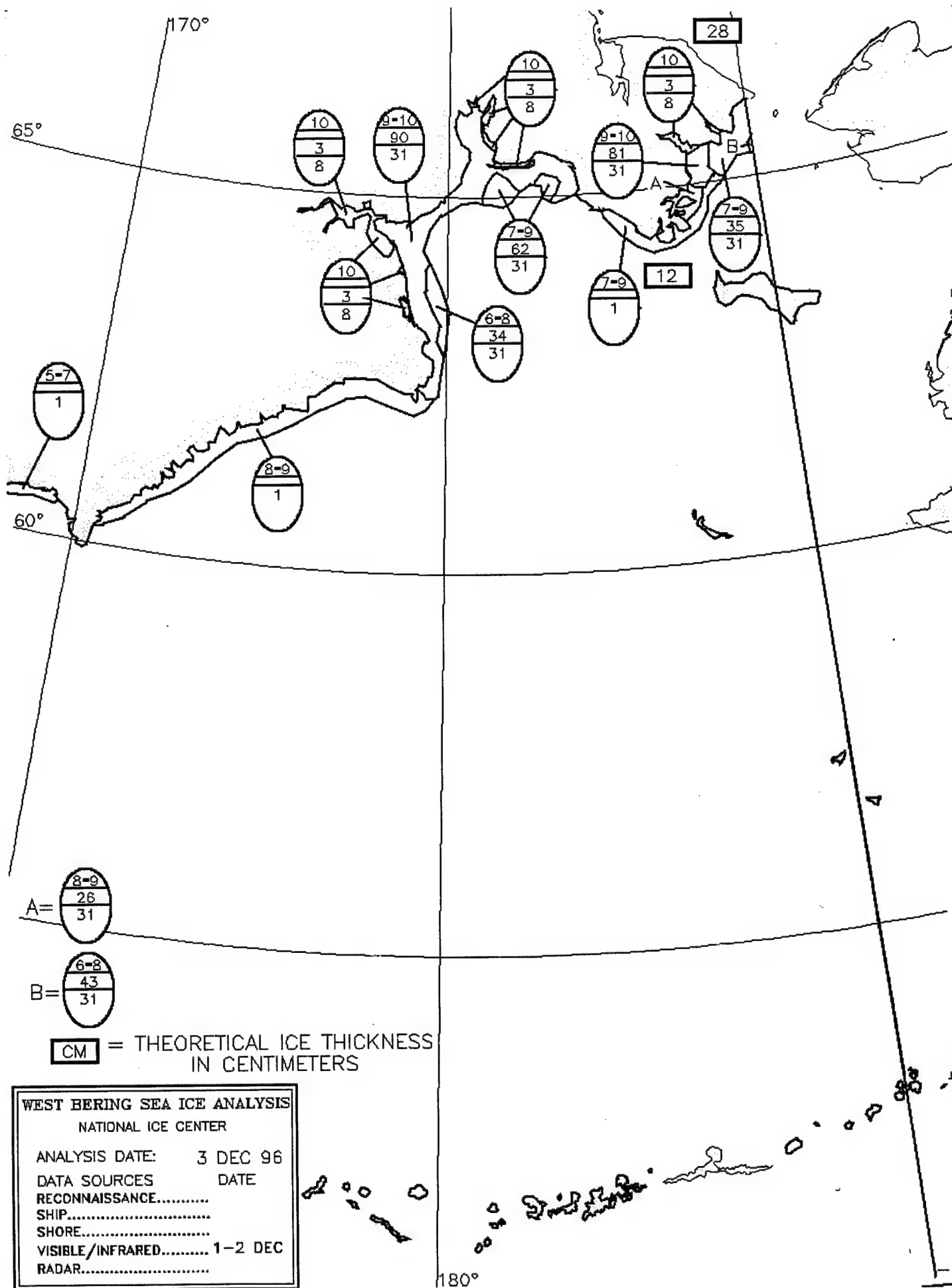


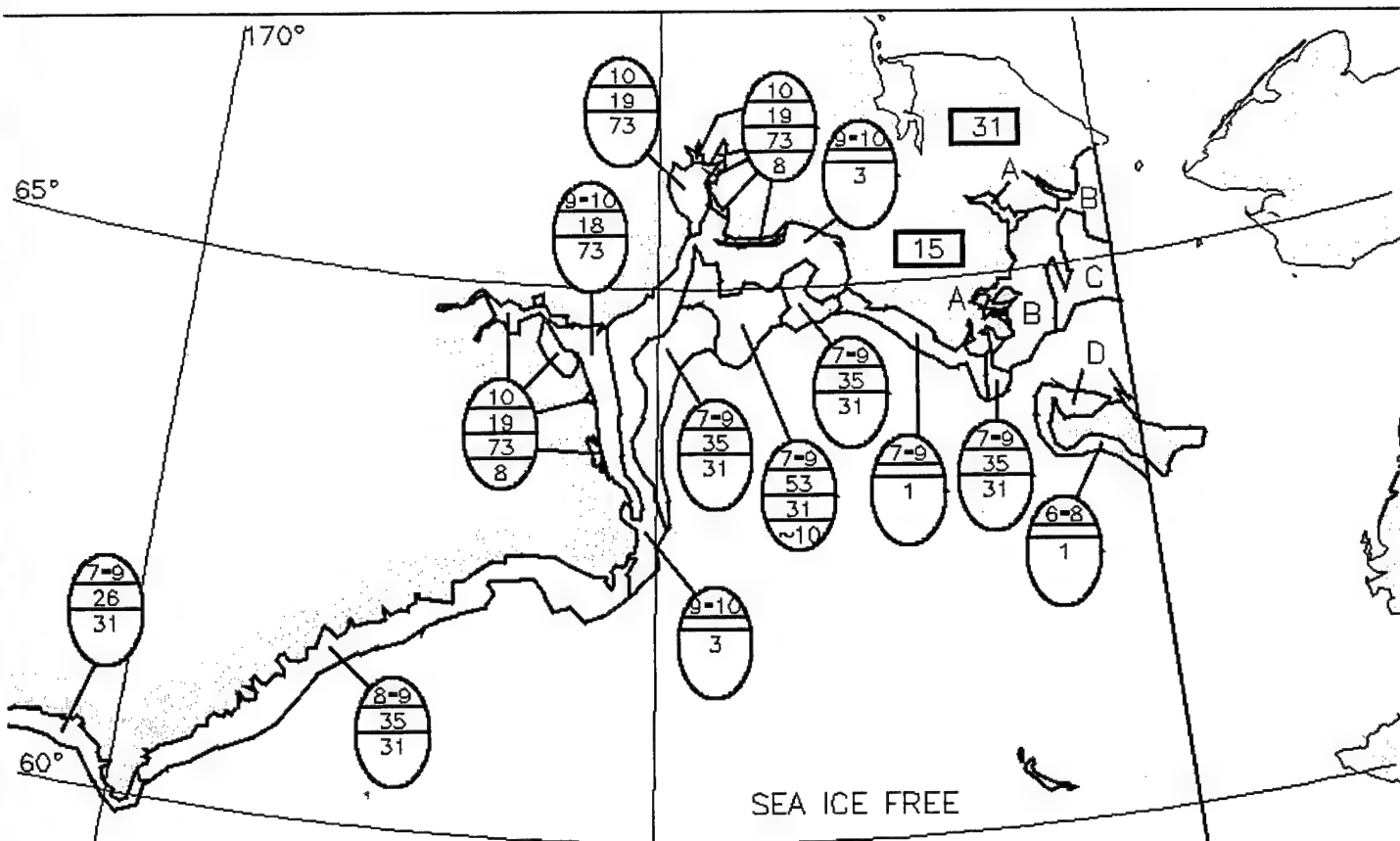












A = $\frac{10}{3}$
8

C = $\frac{6-8}{52}$
31
~10

B = $\frac{9-10}{45}$
31

D = $\frac{6-8}{1}$

[CM] = THEORETICAL ICE THICKNESS
IN CENTIMETERS

WEST BERING SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 6 DEC 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

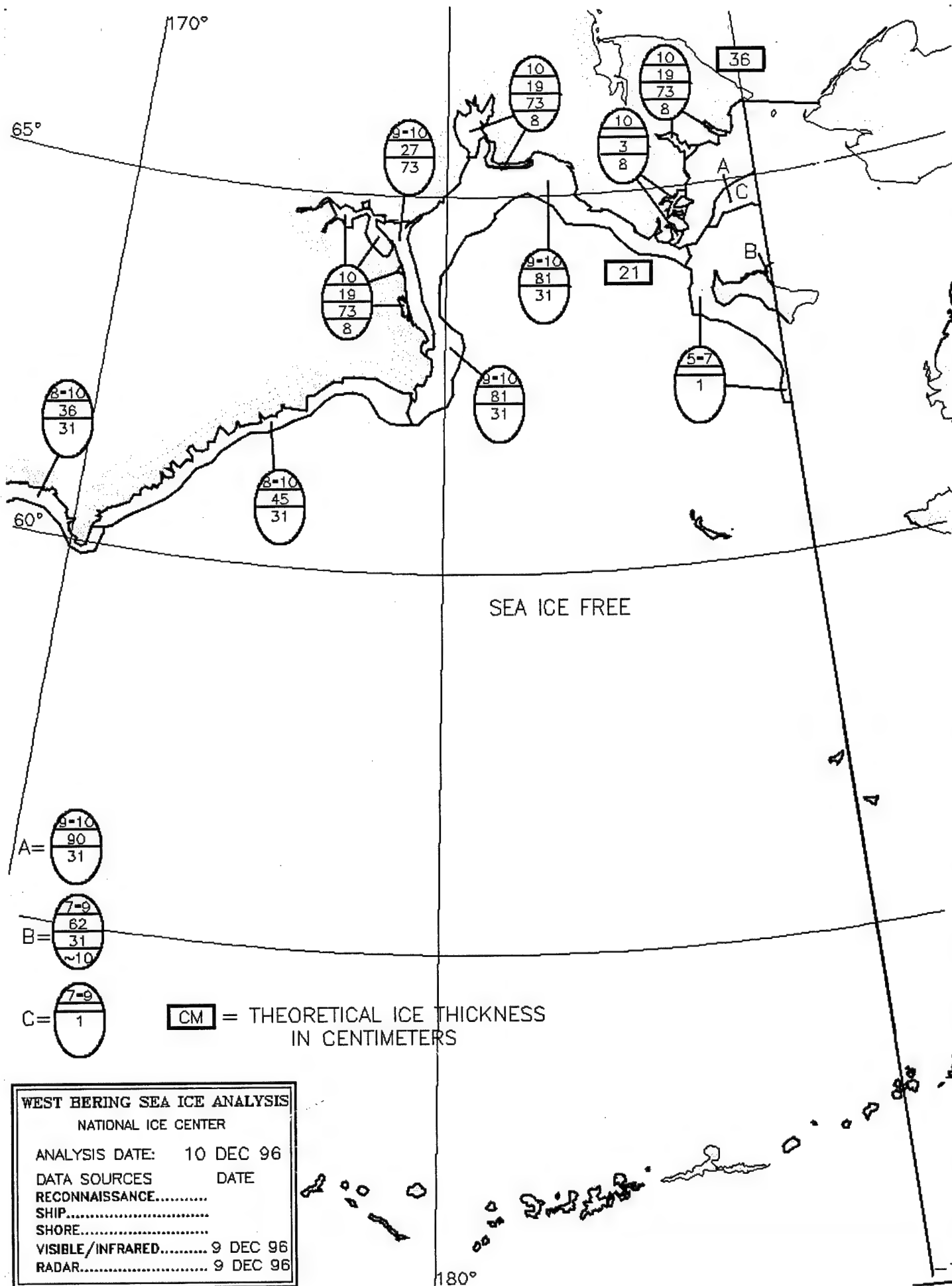
SHORE.....

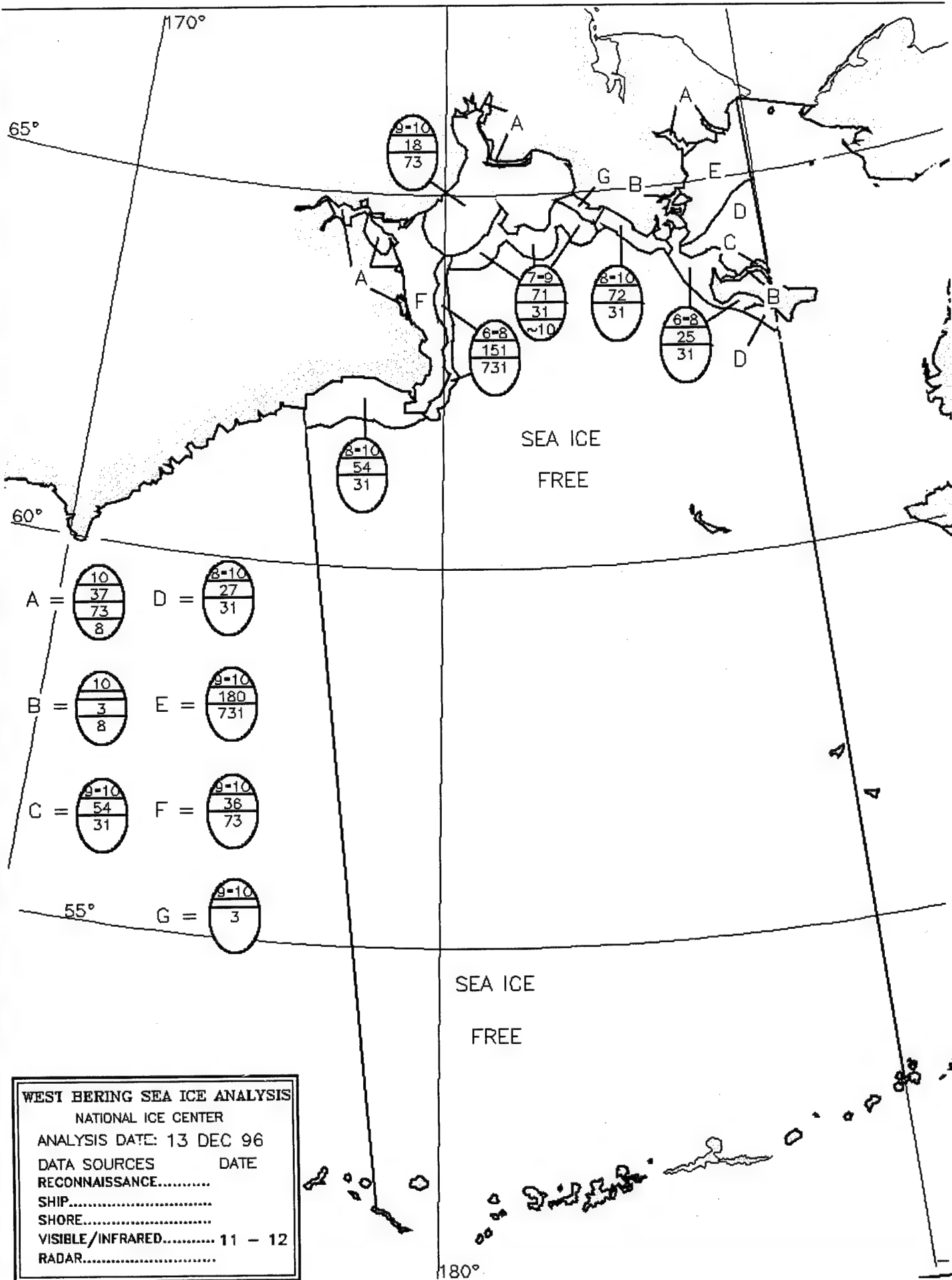
VISIBLE/INFRARED..... 5 DEC 96

RADAR.....

180°

-1





WEST HERING SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 13 DEC 96

DATA SOURCES DATE

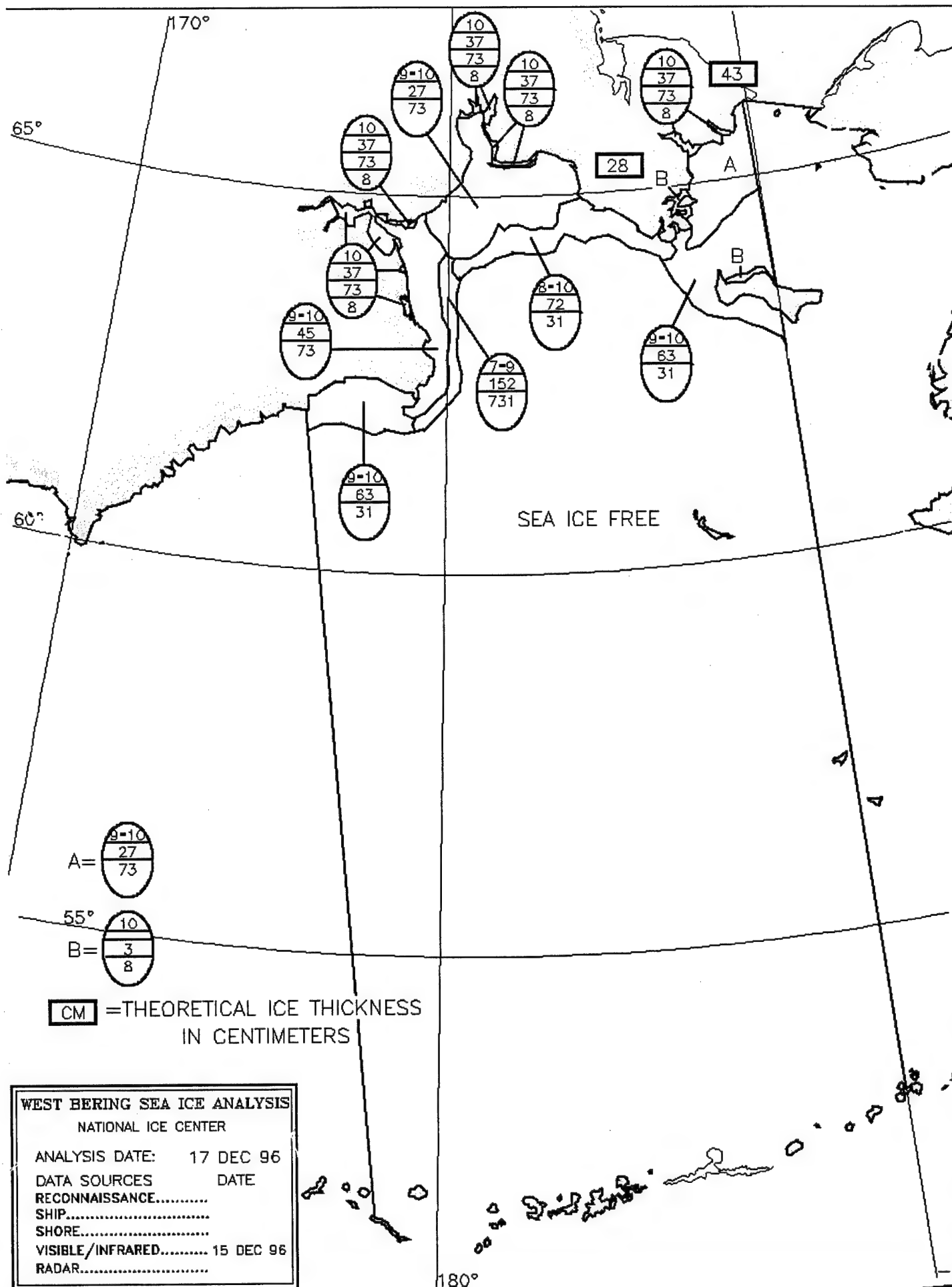
RECONNAISSANCE.....

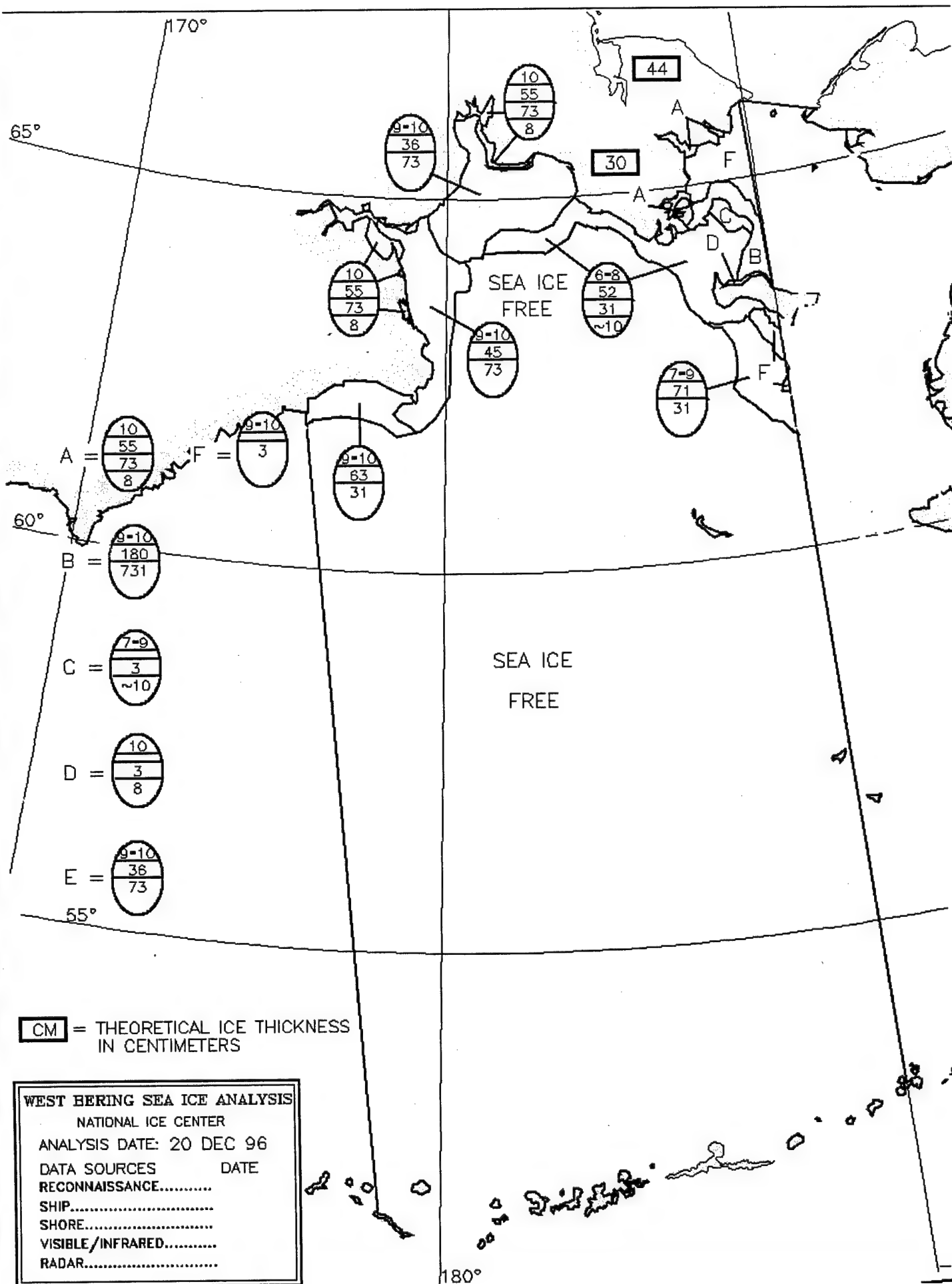
SHIP.....

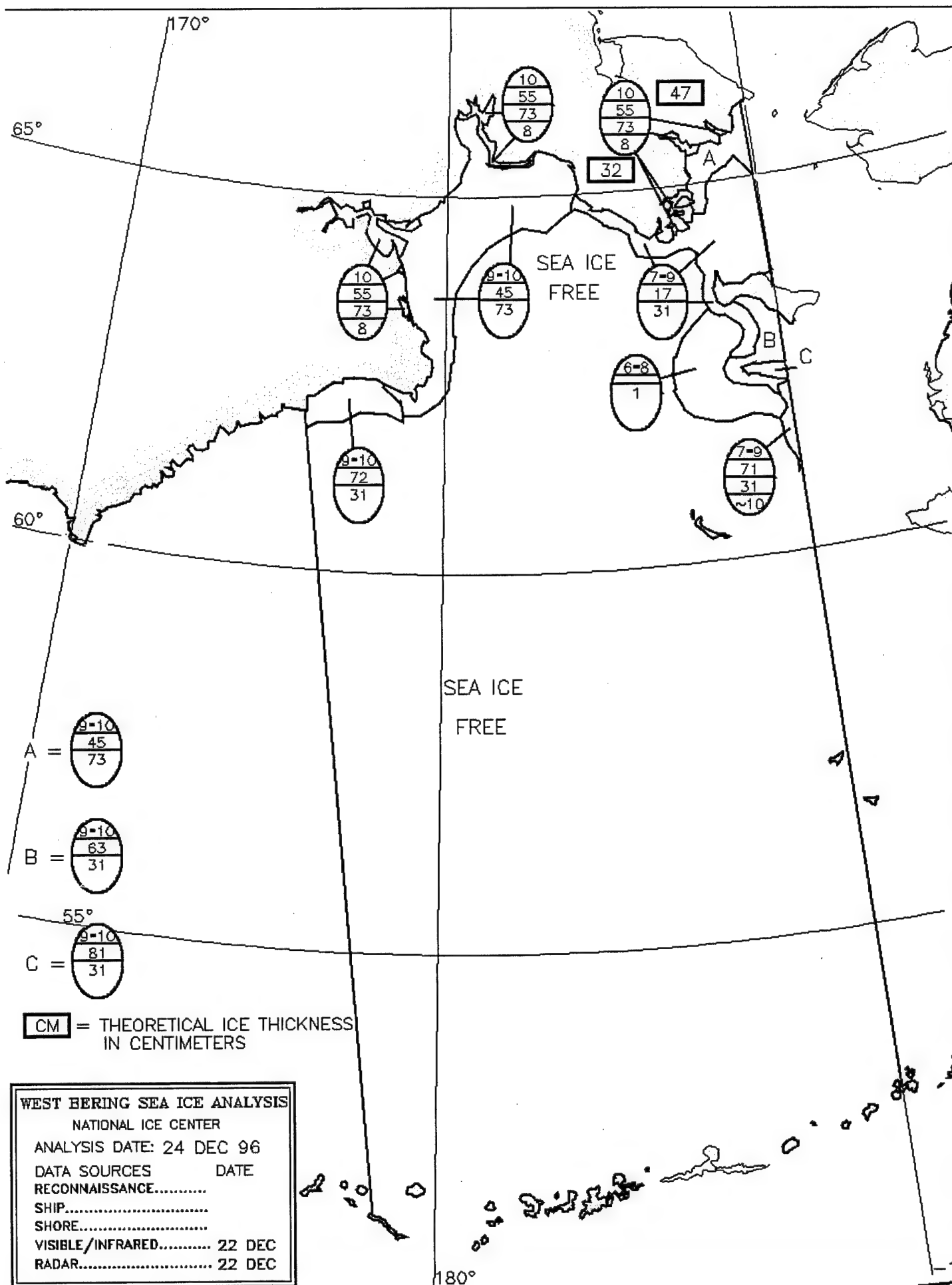
SHORE.....

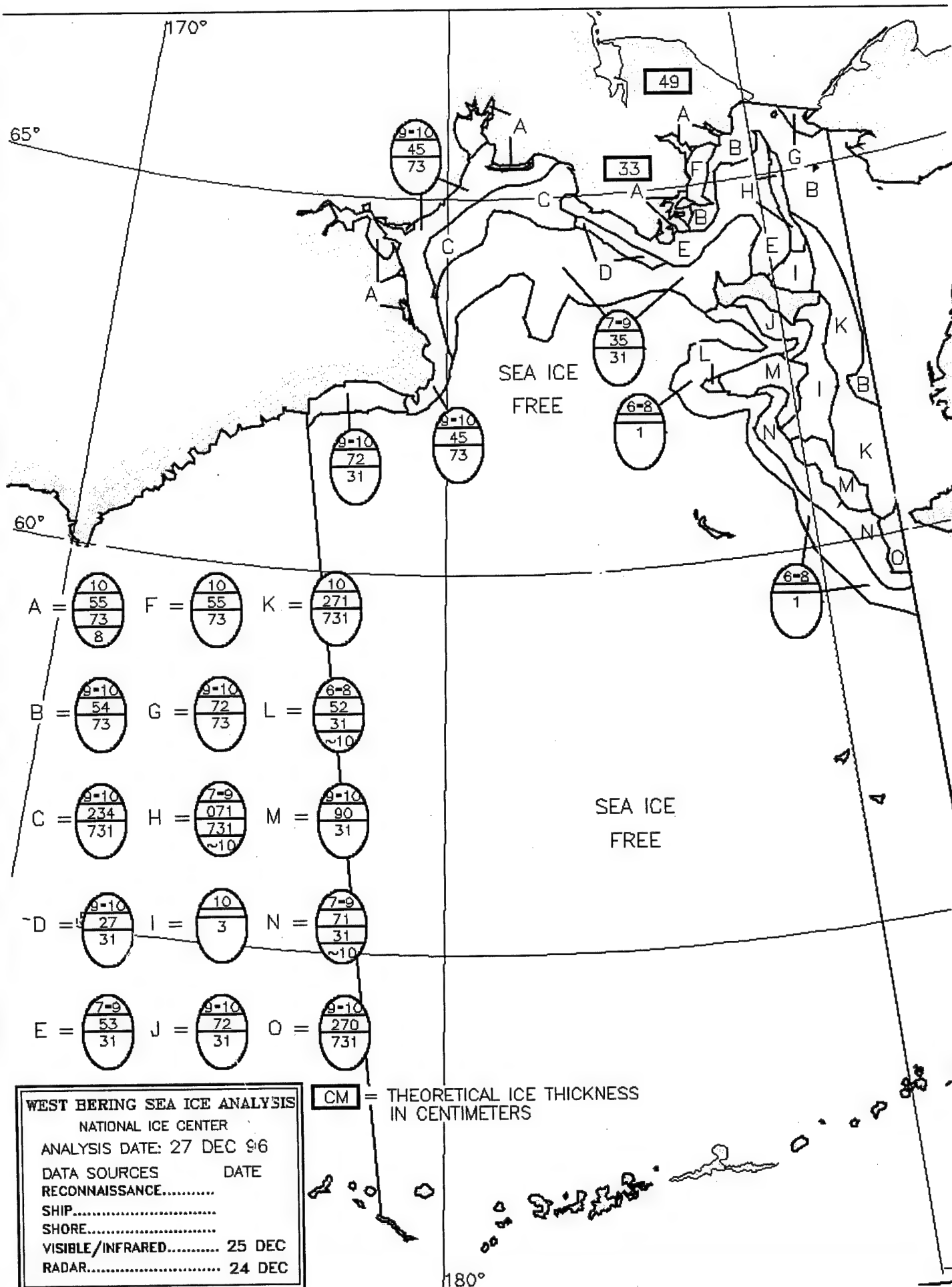
VISIBLE/INFRARED..... 11 - 12

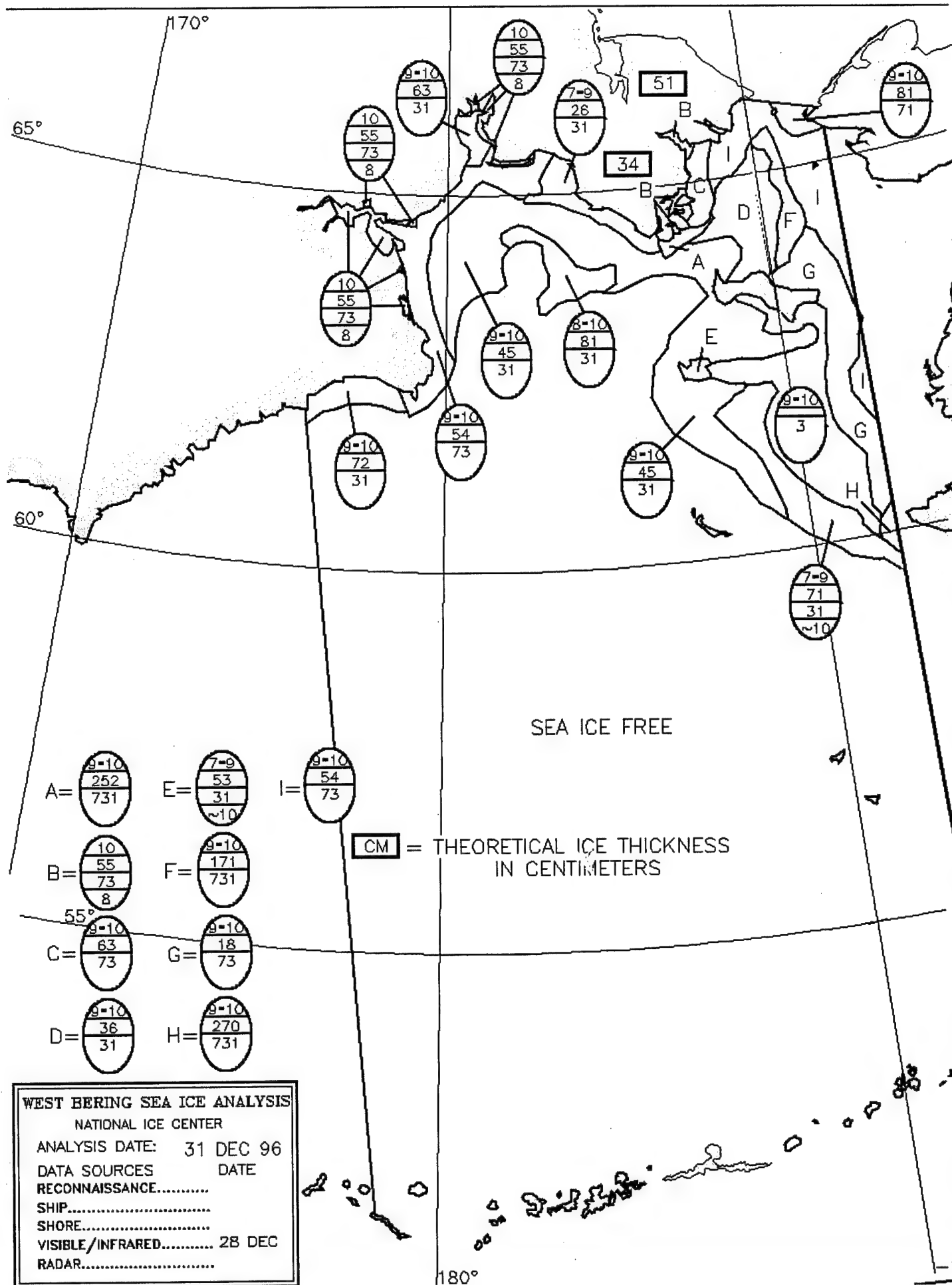
RADAR.....

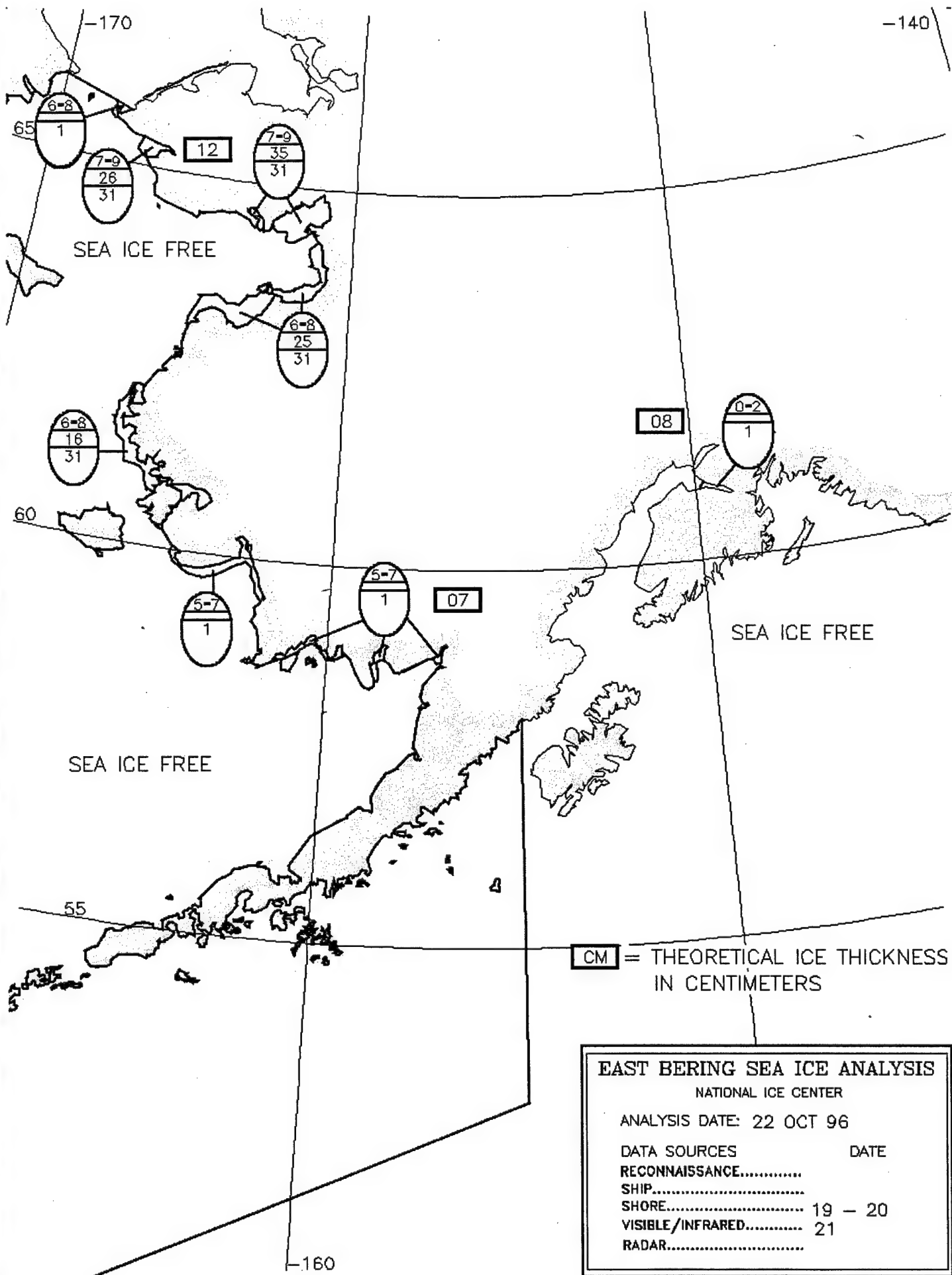




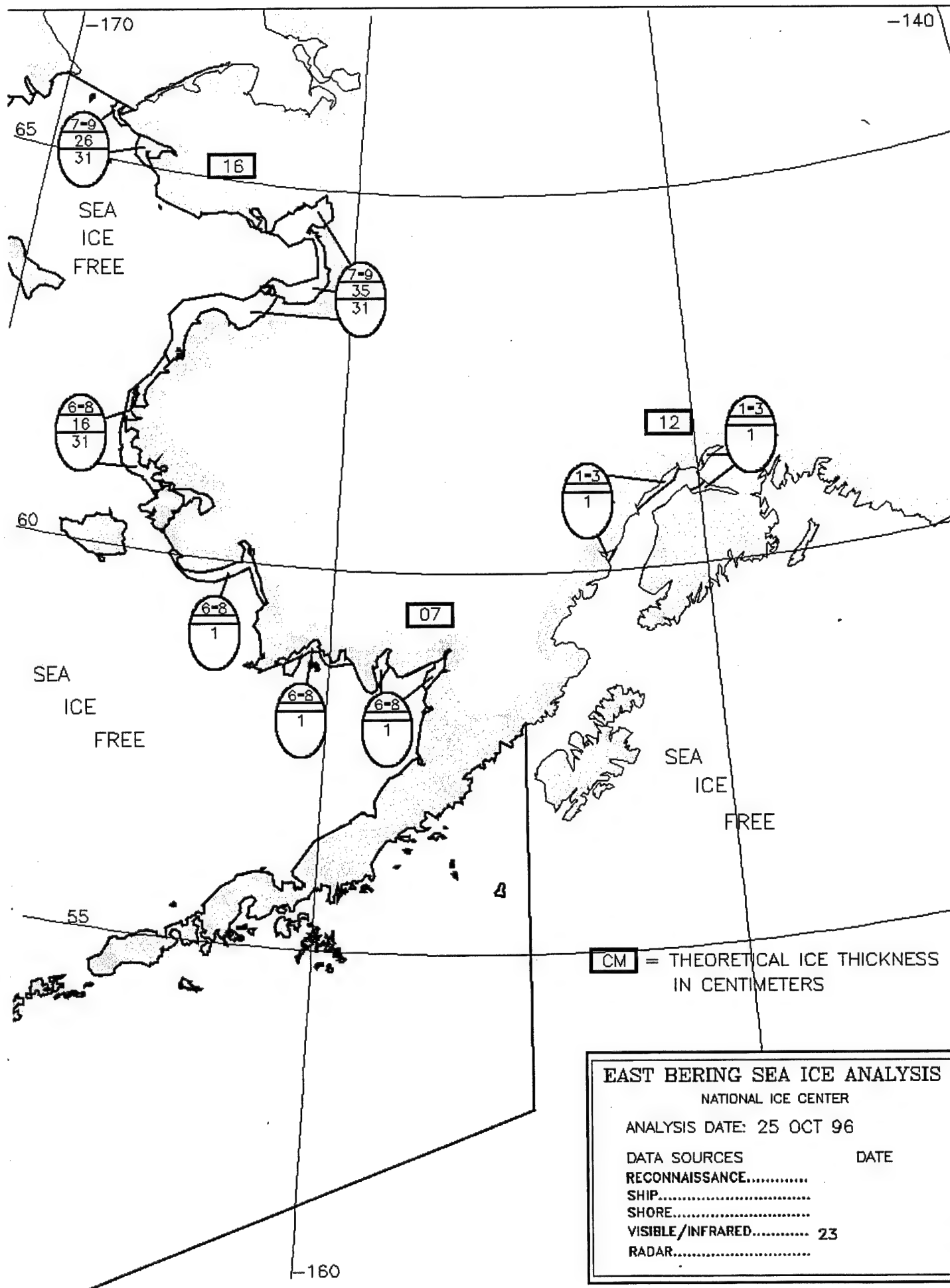


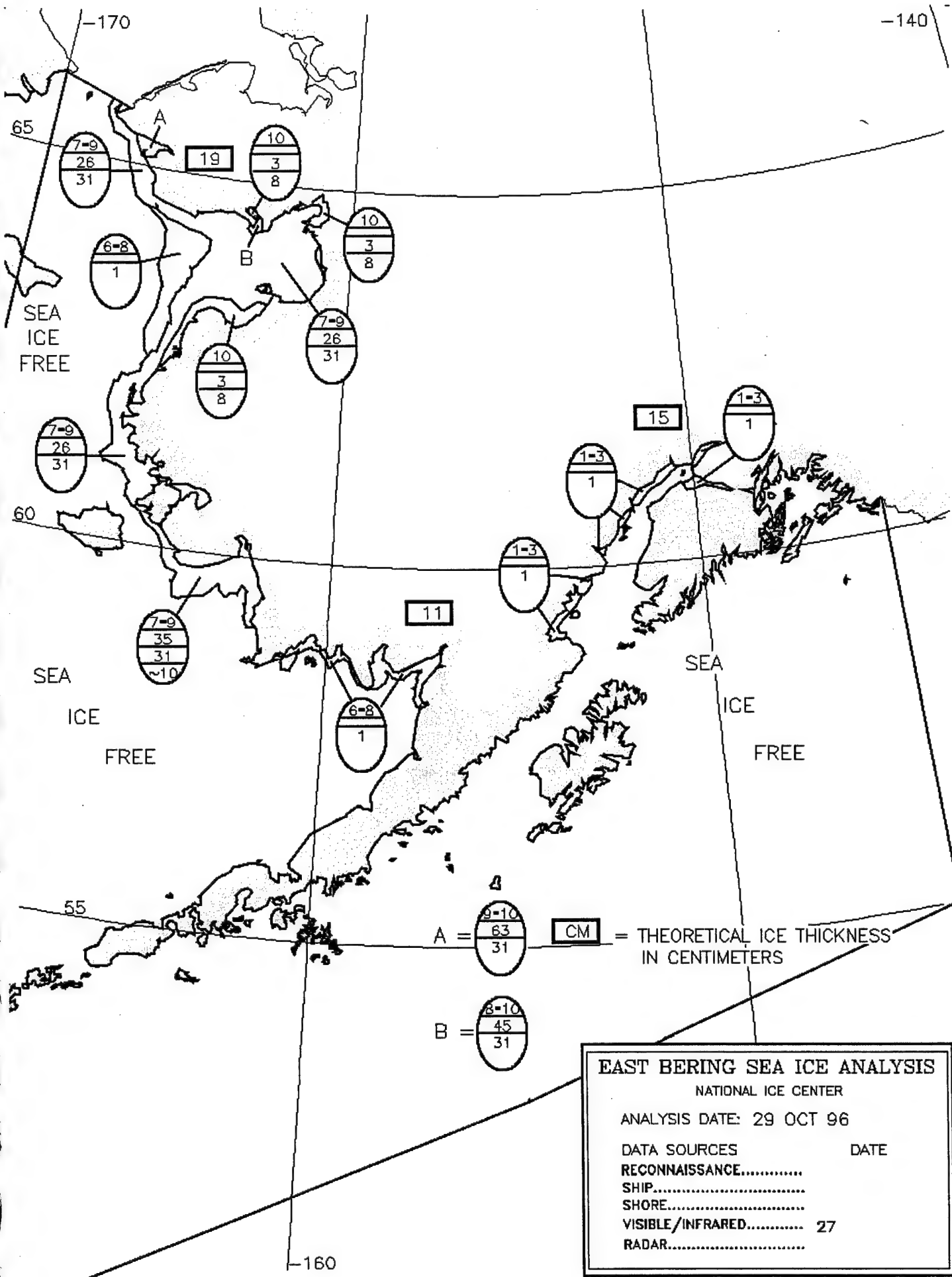


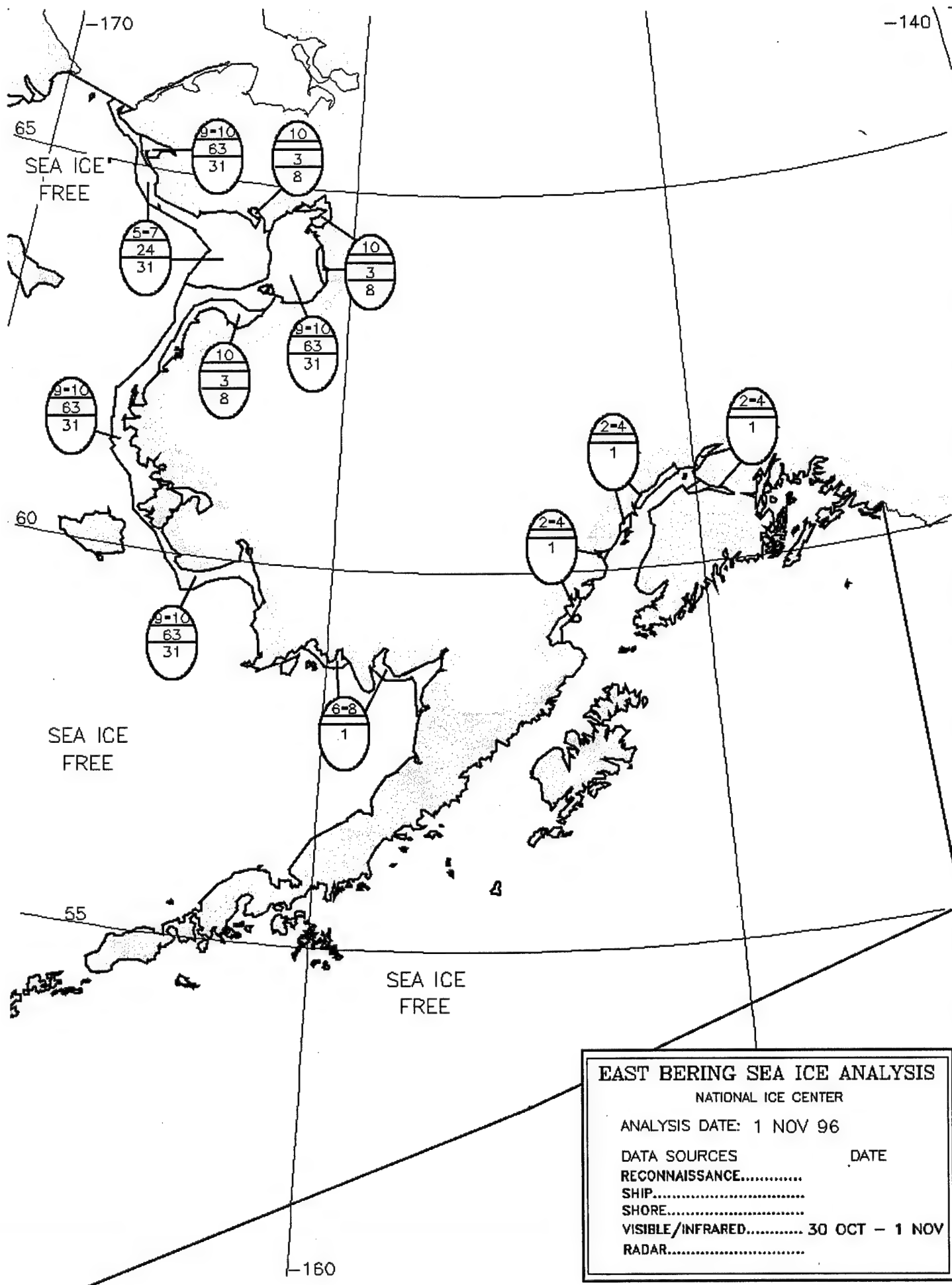




EAST BERING SEA ICE ANALYSIS	
NATIONAL ICE CENTER	
ANALYSIS DATE: 22 OCT 96	
DATA SOURCES	DATE
RECONNAISSANCE.....	
SHIP.....	
SHORE.....	19 - 20
VISIBLE/INFRARED.....	21
RADAR.....	







EAST BERING SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 1 NOV 96

DATA SOURCES DATE

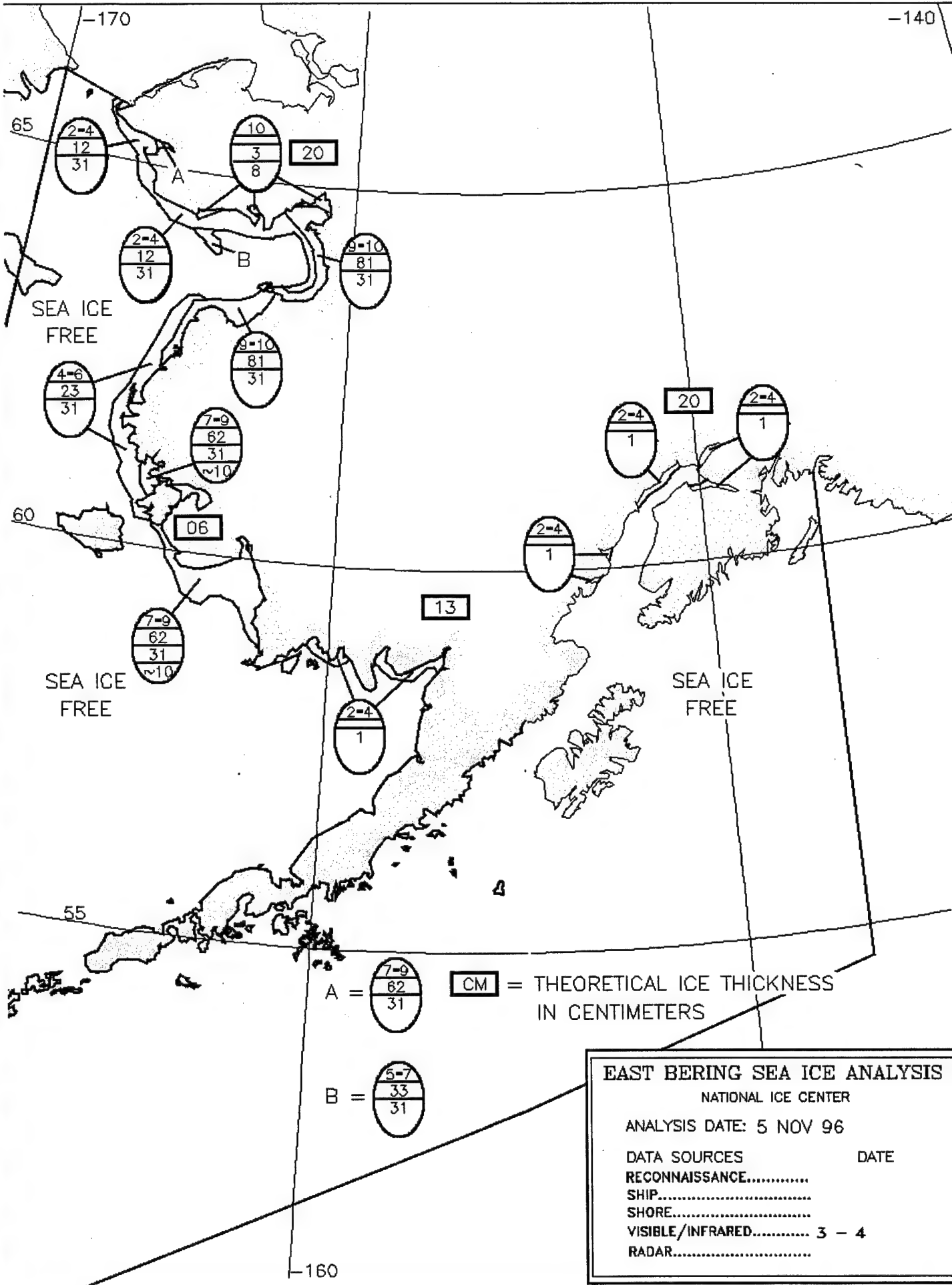
RECONNAISSANCE.....

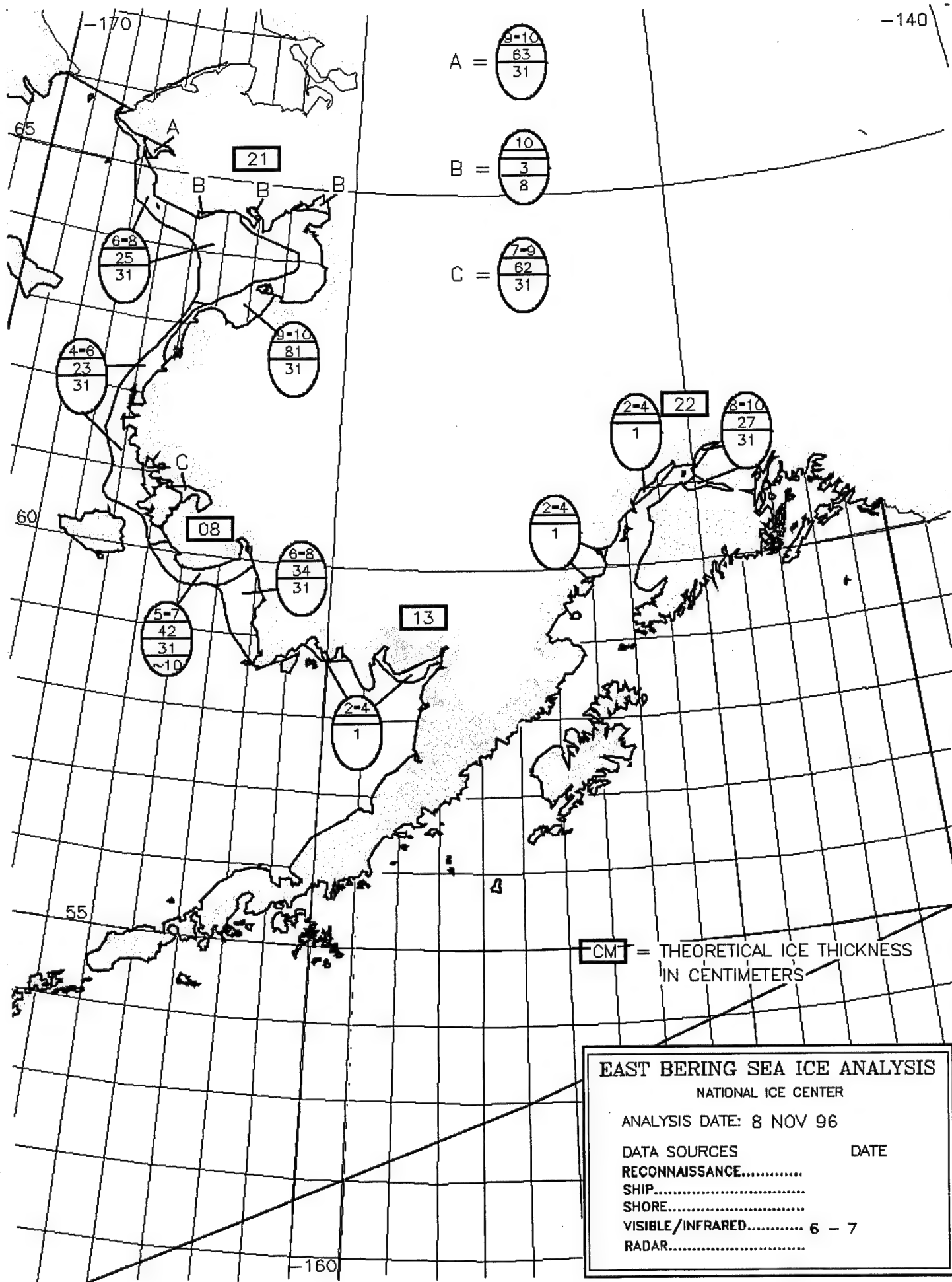
SHIP.....

SHORE.....

VISIBLE/INFRARED..... 30 OCT - 1 NOV

RADAR.....





-170

-140

65

8-10
72
31

10
3
8

23

7-9
35
31

09

5-7
33
31

8-10
81
31

7-9
62
31

9

60

08

6-8
43
31

17

26

2-4
1

8-10
36
31

06

55

CM = THEORETICAL ICE THICKNESS
IN CENTIMETERS

NM ↑ = 72HR FORECAST ICE DRIFT
IN NAUTICAL MILES

EAST BERING SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 12 NOV 96

DATA SOURCES DATE

RECONNAISSANCE.....

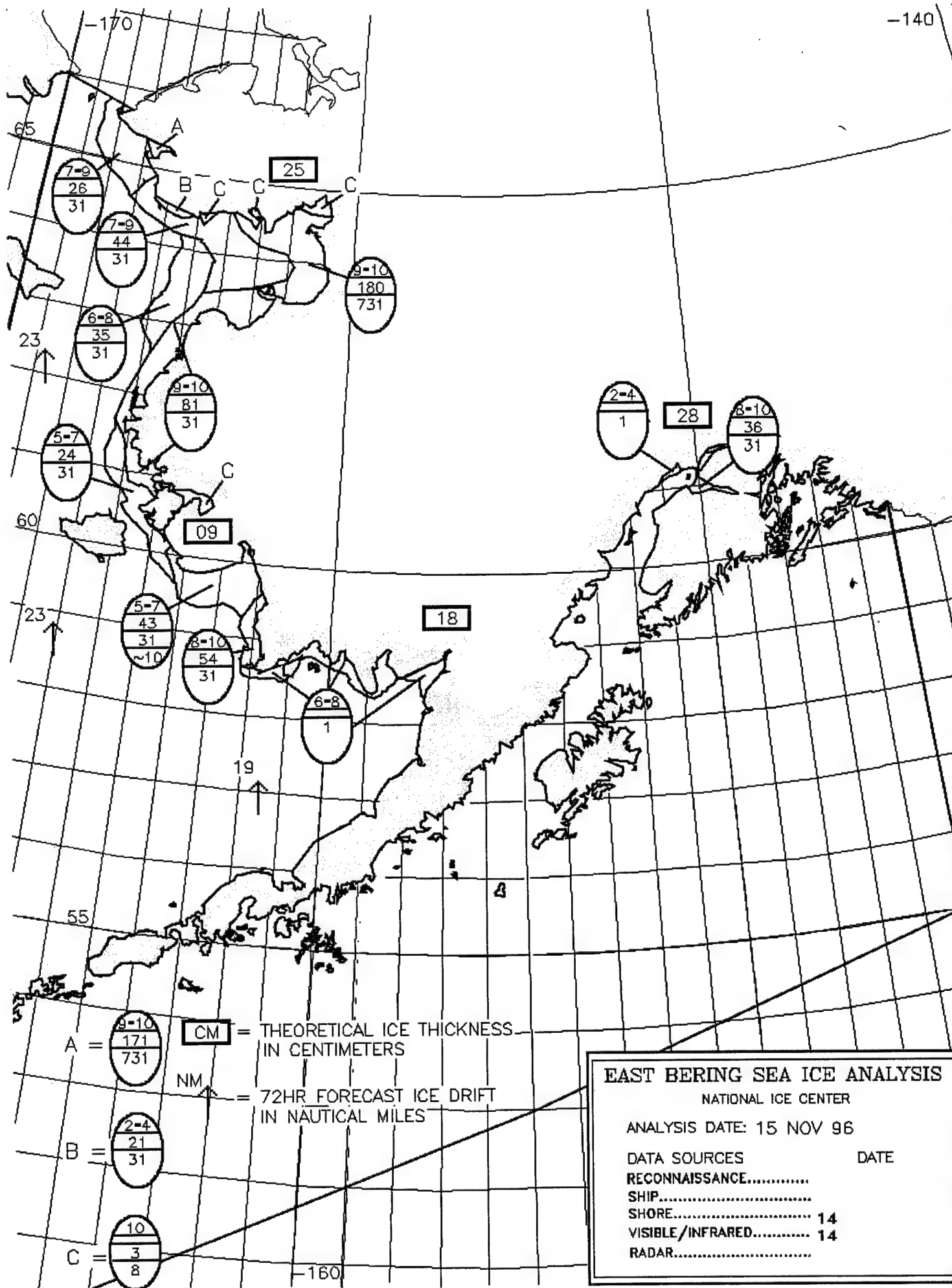
SHIP.....

SHORE.....

VISIBLE/INFRARED.....

RADAR.....

-160



A = $\frac{9-10}{171}$ $\frac{731}{731}$ **CM** = THEORETICAL ICE THICKNESS
IN CENTIMETERS

NM = 72HR FORECAST ICE DRIFT
IN NAUTICAL MILES

B = $\frac{2-4}{21}$ $\frac{31}{31}$

C = $\frac{10}{3}$ $\frac{8}{8}$

EAST BERING SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 15 NOV 96

DATA SOURCES

RECONNAISSANCE.....

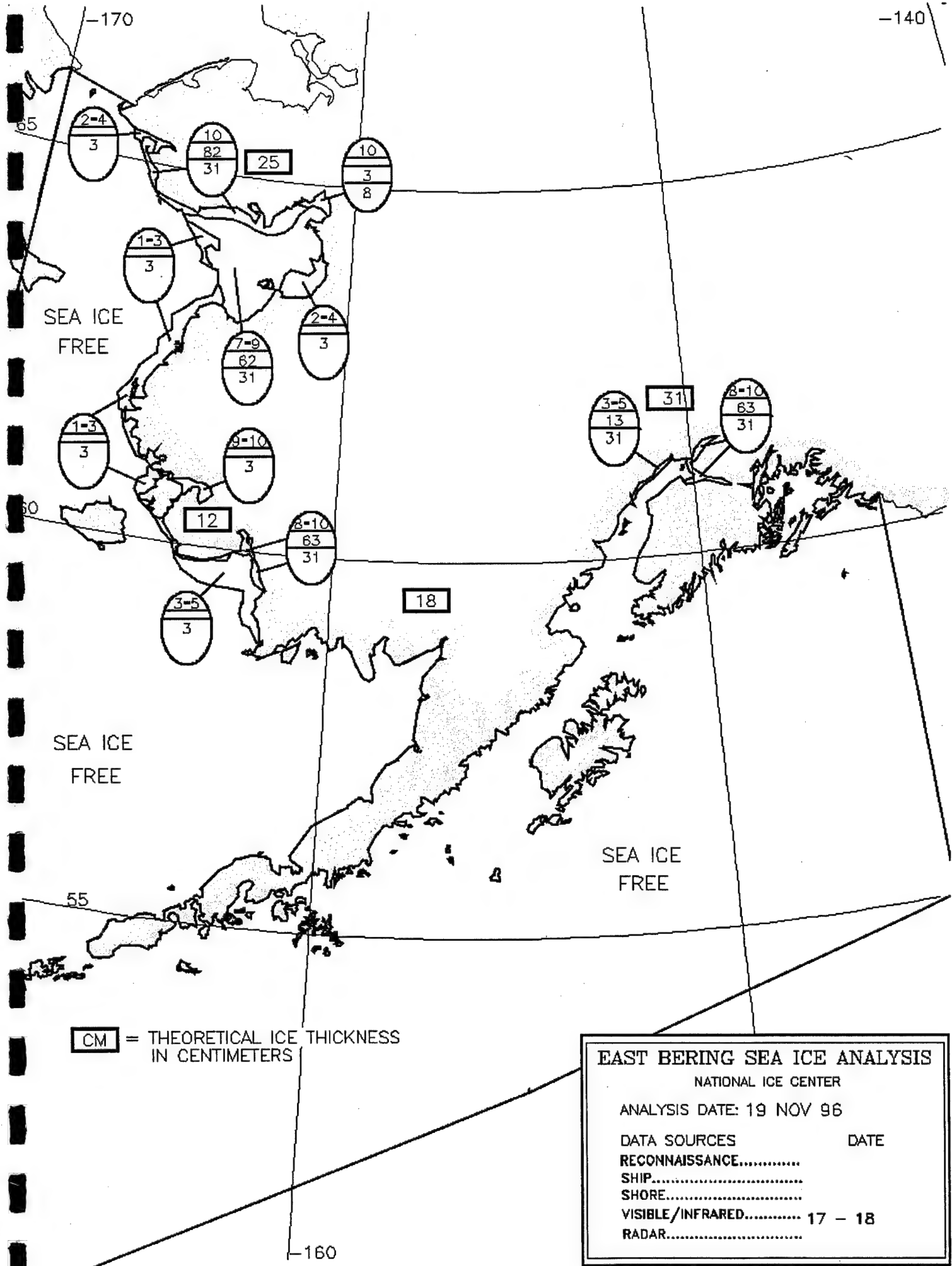
SHIP.....

SHORE..... 14

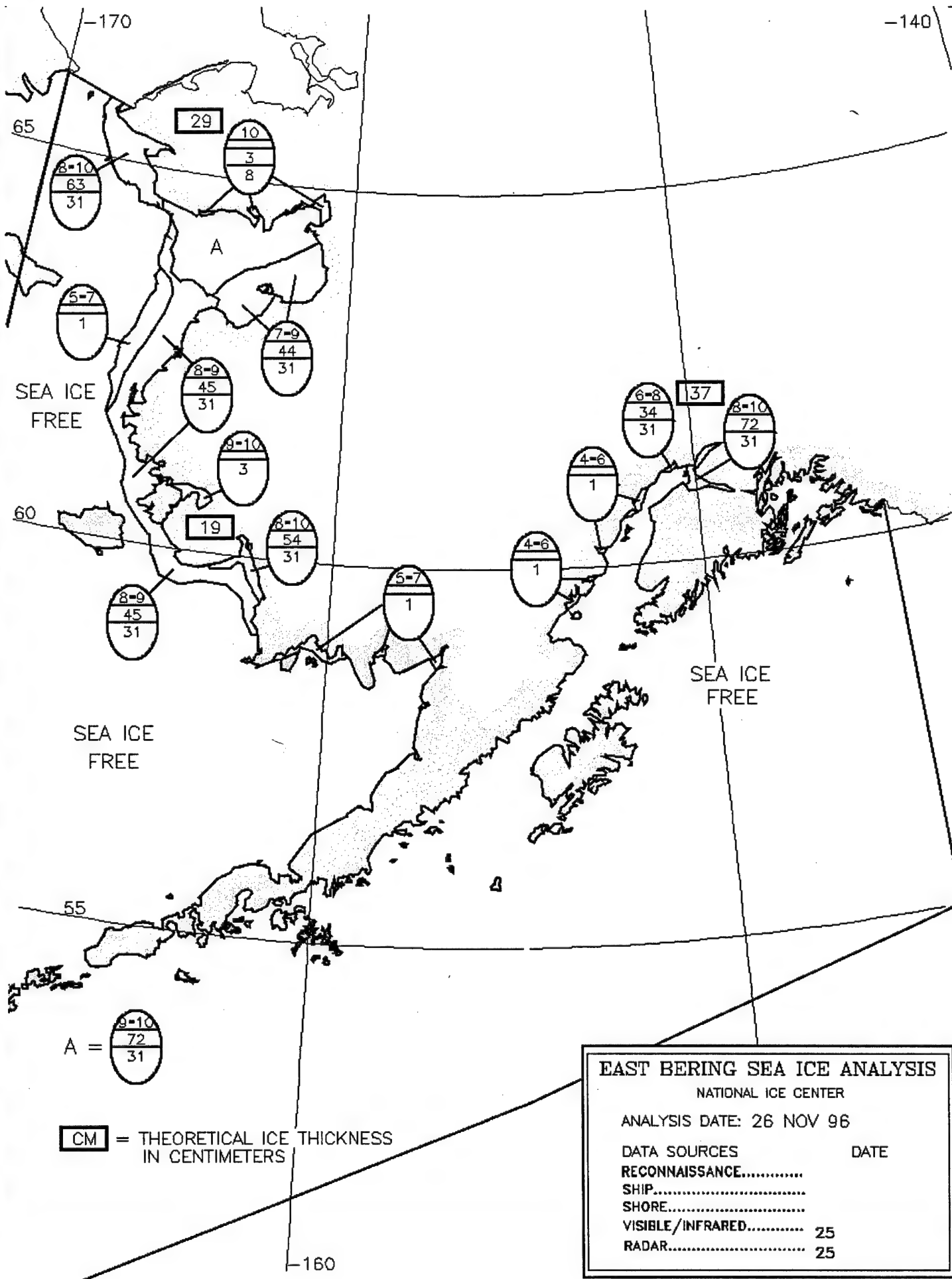
VISIBLE/INFRARED..... 14

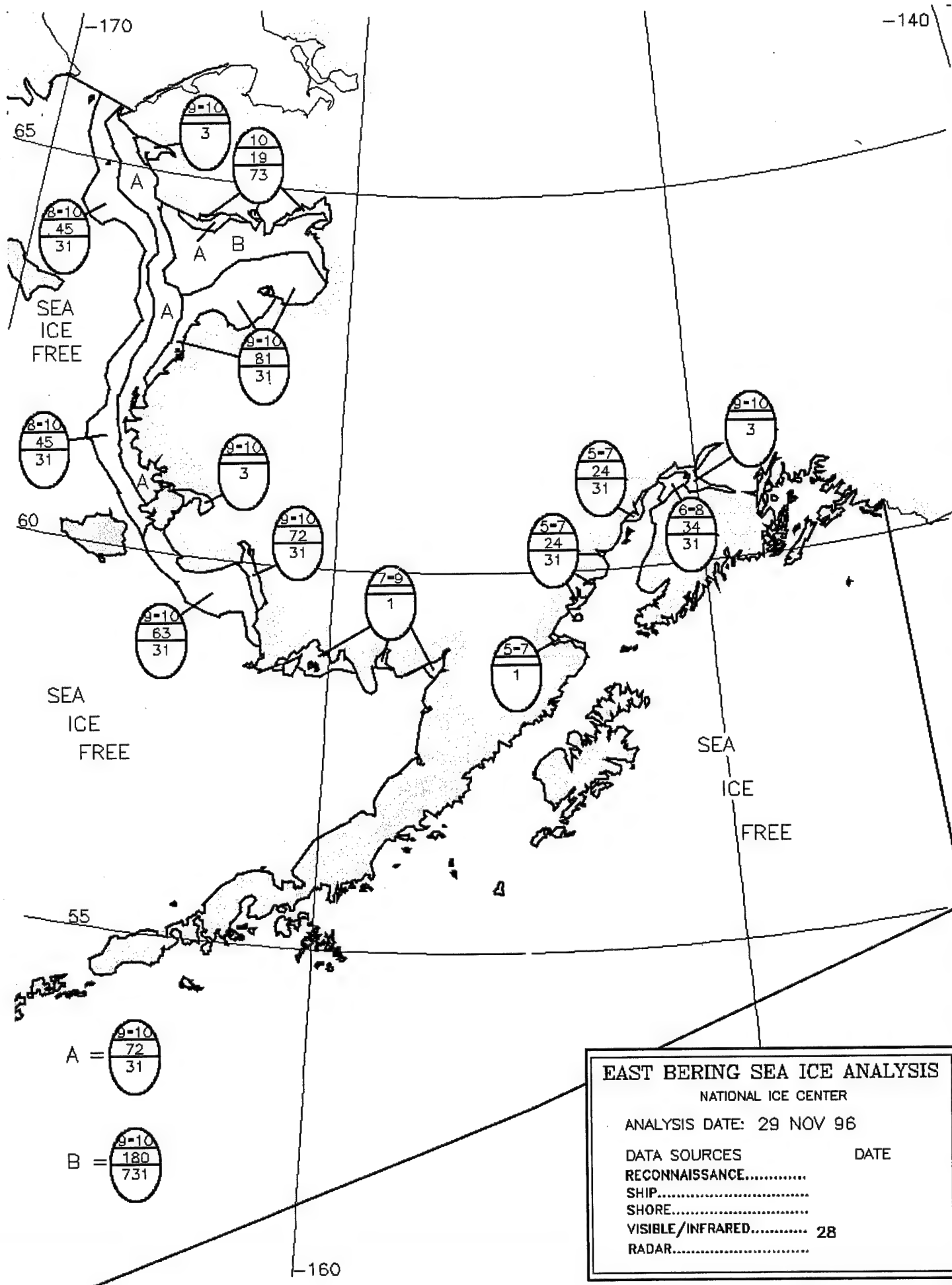
RADAR.....

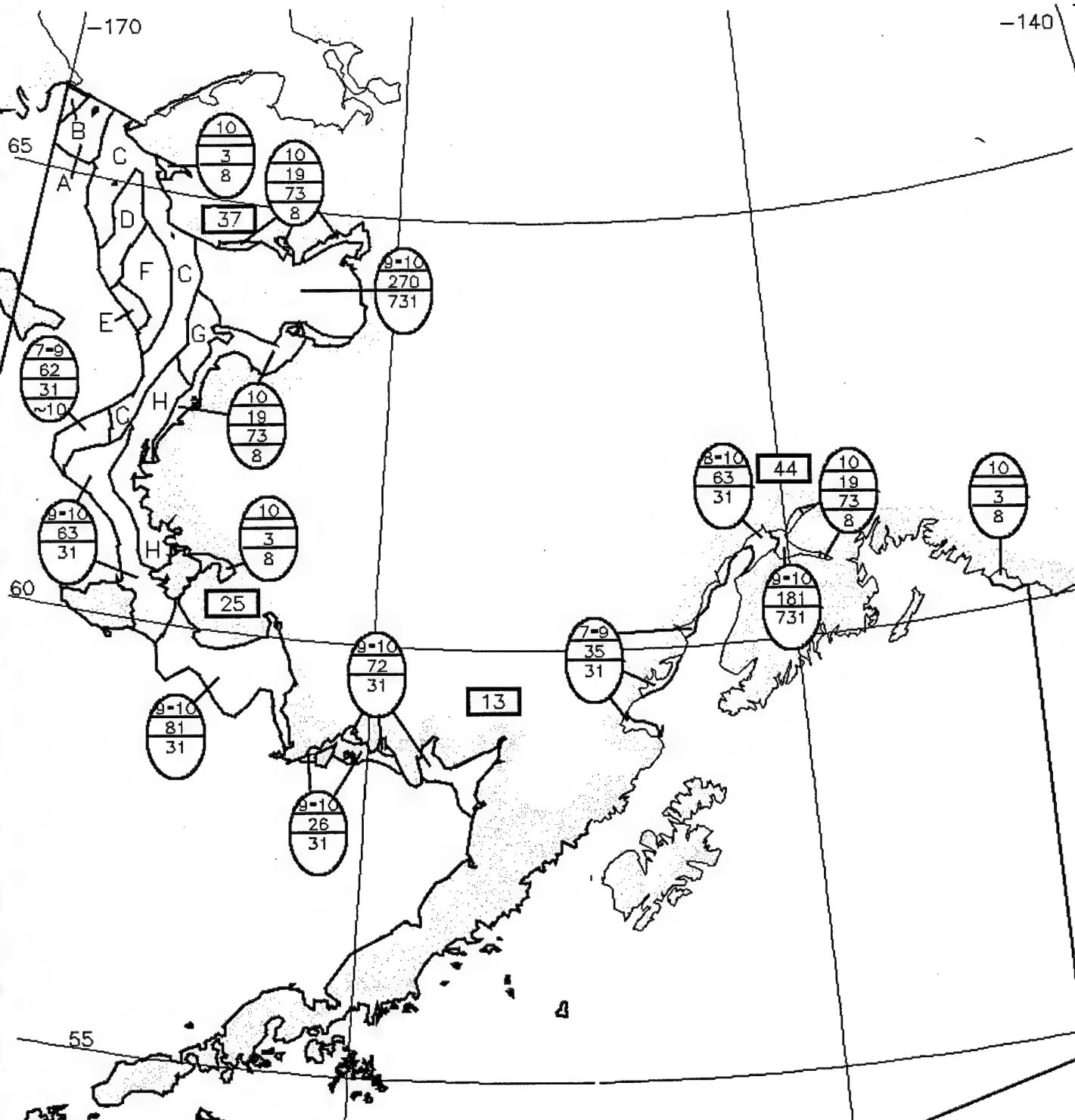
DATE



EAST BERING SEA ICE ANALYSIS	
NATIONAL ICE CENTER	
ANALYSIS DATE: 19 NOV 96	
DATA SOURCES	DATE
RECONNAISSANCE.....	
SHIP.....	
SHORE.....	
VISIBLE/INFRARED.....	17 - 18
RADAR.....	



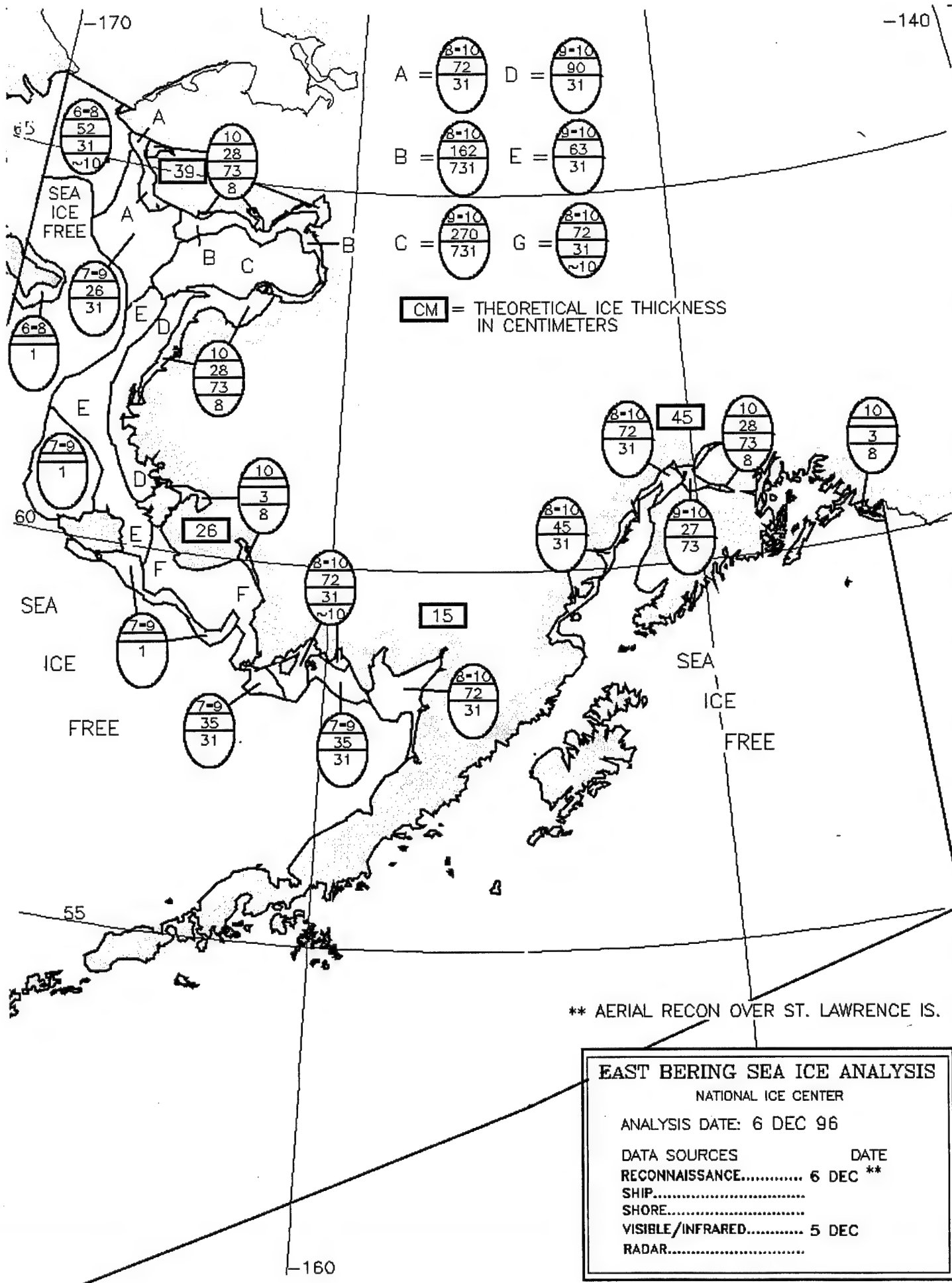




CM = THEORETICAL ICE THICKNESS
IN CENTIMETERS

A = $\frac{6-8}{43}$ / $\frac{9-10}{63}$ / $\frac{25}{31}$ / $\frac{252}{731}$ / $\frac{8-10}{31}$
 B = $\frac{7-9}{35}$ / $\frac{6-8}{25}$ / $\frac{9-10}{36}$ / $\frac{9-10}{90}$ / $\frac{31}{31}$
 C = $\frac{6-8}{43}$ / $\frac{9-10}{63}$ / $\frac{25}{31}$ / $\frac{252}{731}$ / $\frac{8-10}{31}$
 D = $\frac{6-8}{25}$ / $\frac{9-10}{36}$ / $\frac{9-10}{90}$ / $\frac{31}{31}$ / $\frac{31}{31}$
 E = $\frac{6-8}{25}$ / $\frac{9-10}{36}$ / $\frac{9-10}{90}$ / $\frac{31}{31}$ / $\frac{31}{31}$
 F = $\frac{6-8}{25}$ / $\frac{9-10}{36}$ / $\frac{9-10}{90}$ / $\frac{31}{31}$ / $\frac{31}{31}$
 G = $\frac{6-8}{25}$ / $\frac{9-10}{36}$ / $\frac{9-10}{90}$ / $\frac{31}{31}$ / $\frac{31}{31}$
 H = $\frac{6-8}{25}$ / $\frac{9-10}{36}$ / $\frac{9-10}{90}$ / $\frac{31}{31}$ / $\frac{31}{31}$

EAST BERING SEA ICE ANALYSIS
 NATIONAL ICE CENTER
 ANALYSIS DATE: 3 DEC 96
 DATA SOURCES
 RECONNAISSANCE.....
 SHIP.....
 SHORE.....
 VISIBLE/INFRARED..... 1 - 2 DEC
 RADAR.....



EAST BERING SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 6 DEC 96

DATA SOURCES DATE

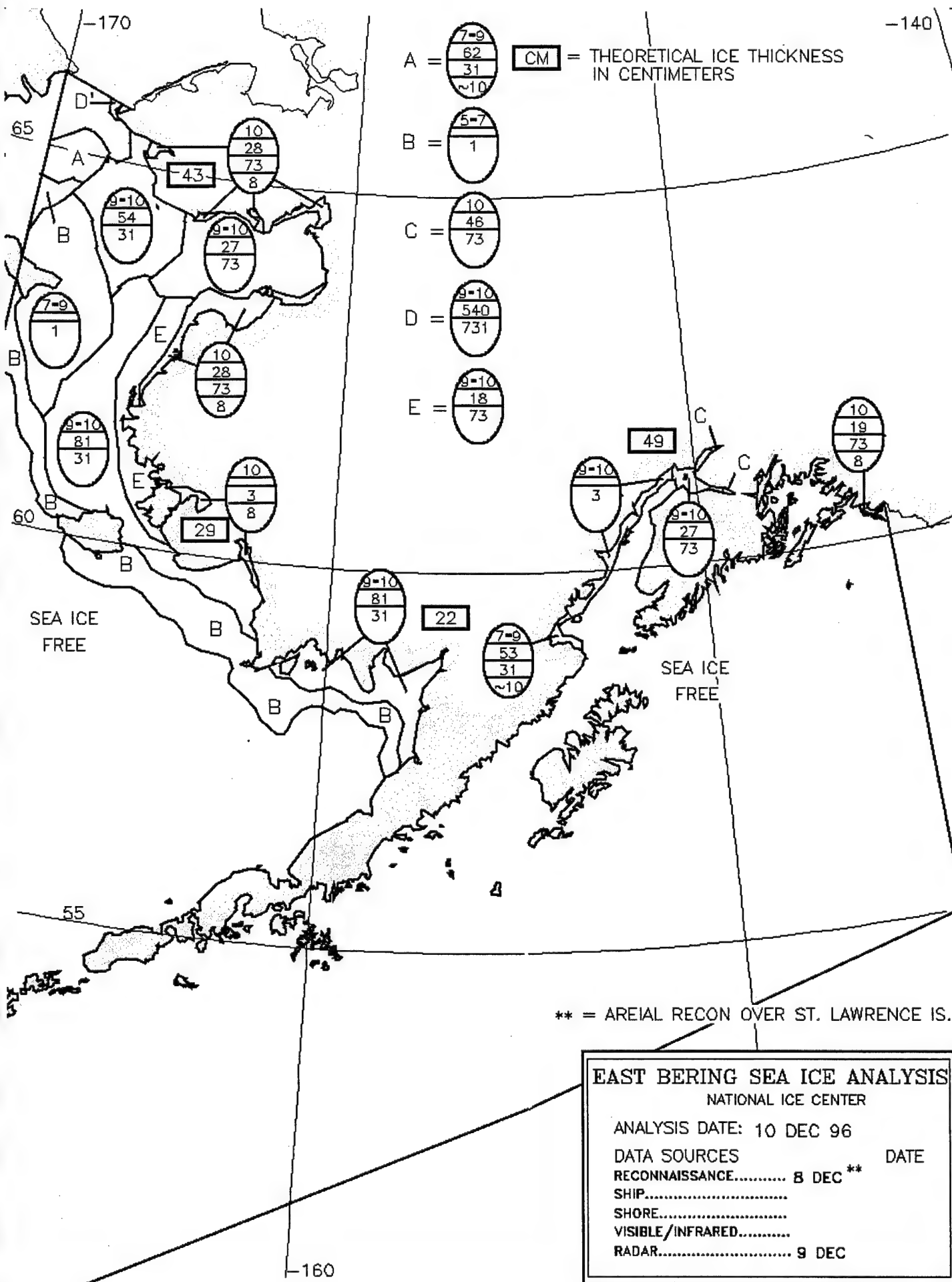
RECONNAISSANCE..... 6 DEC **

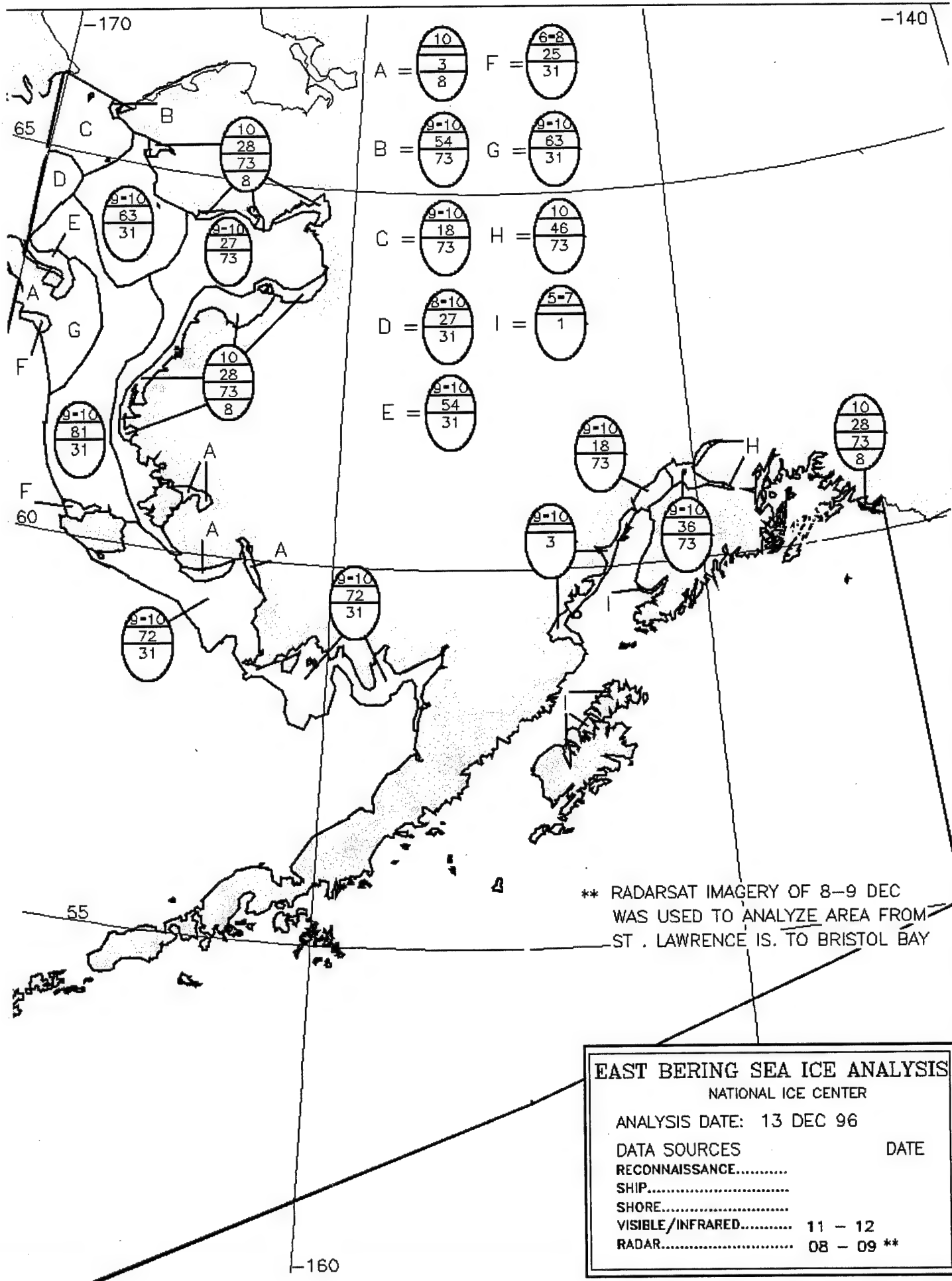
SHIP.....

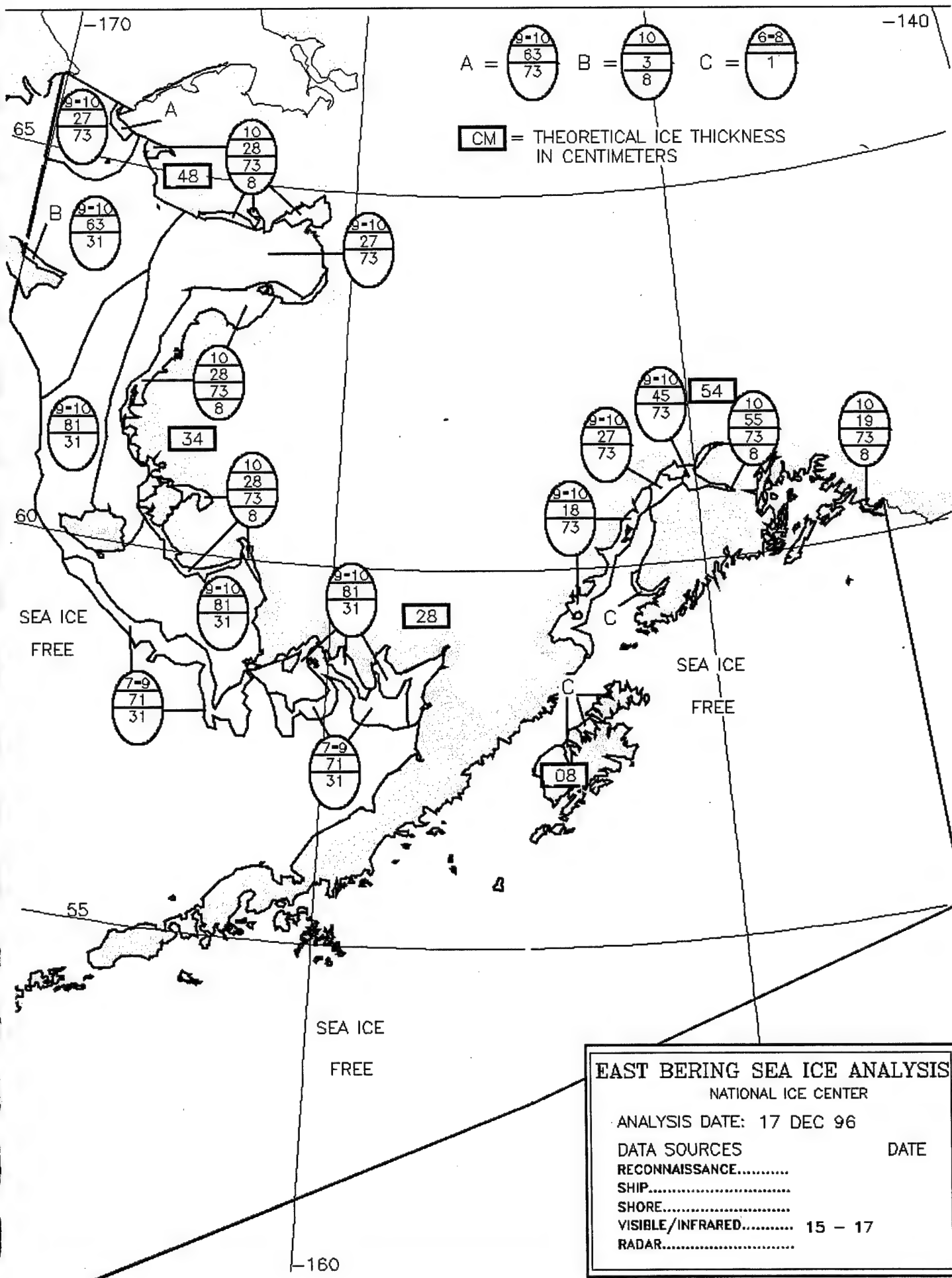
SHORE.....

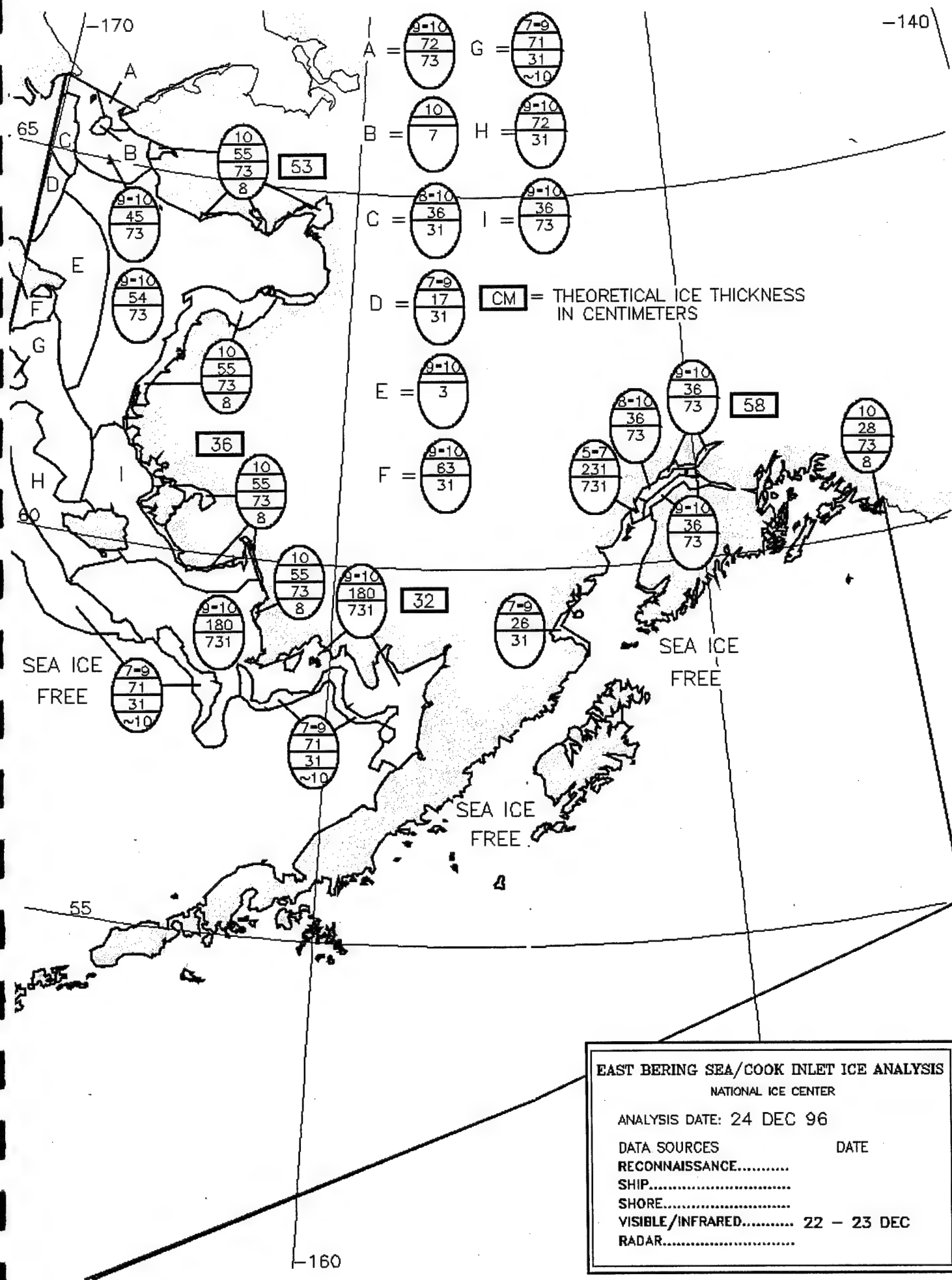
VISIBLE/INFRARED..... 5 DEC

RADAR.....

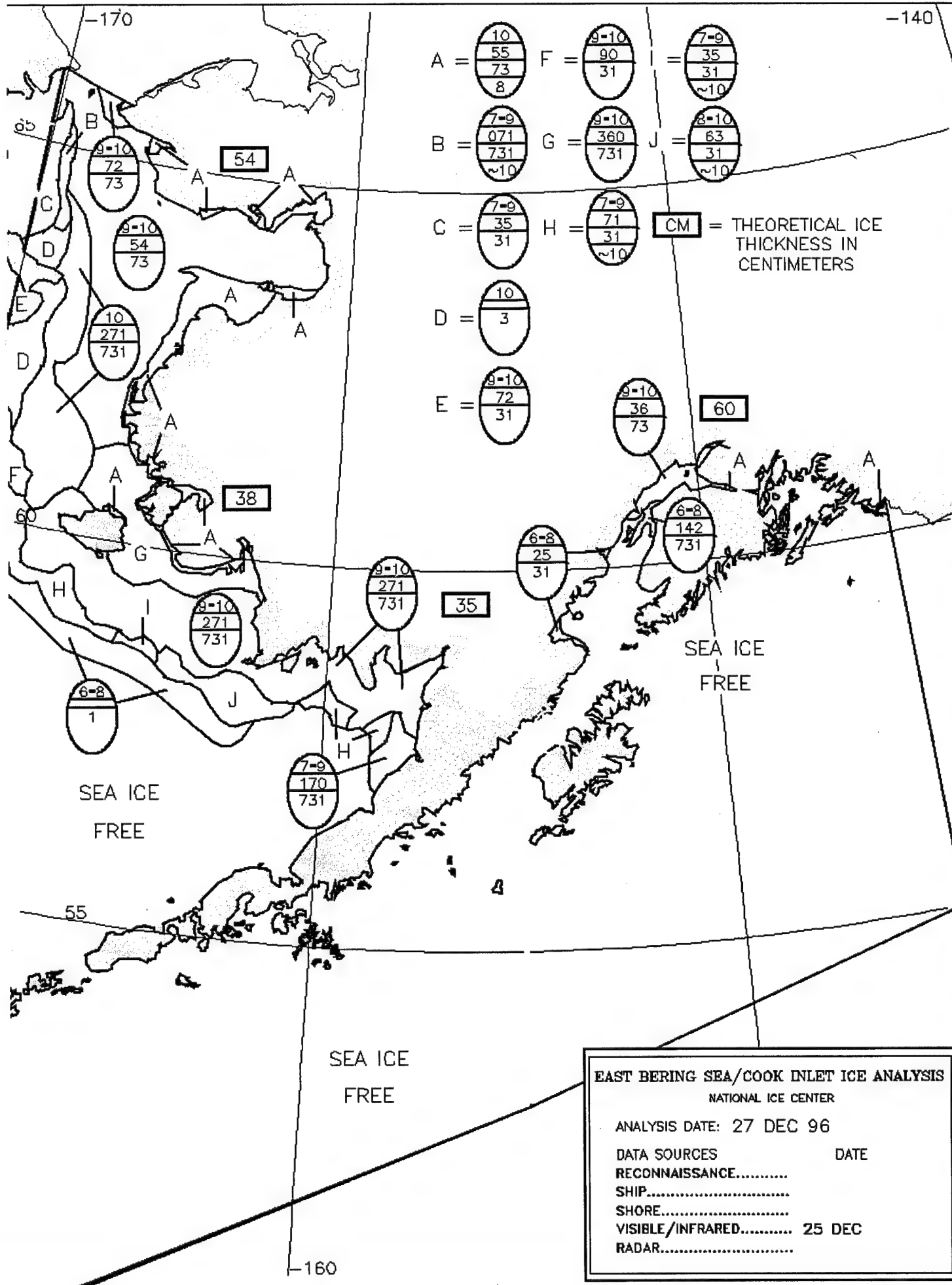


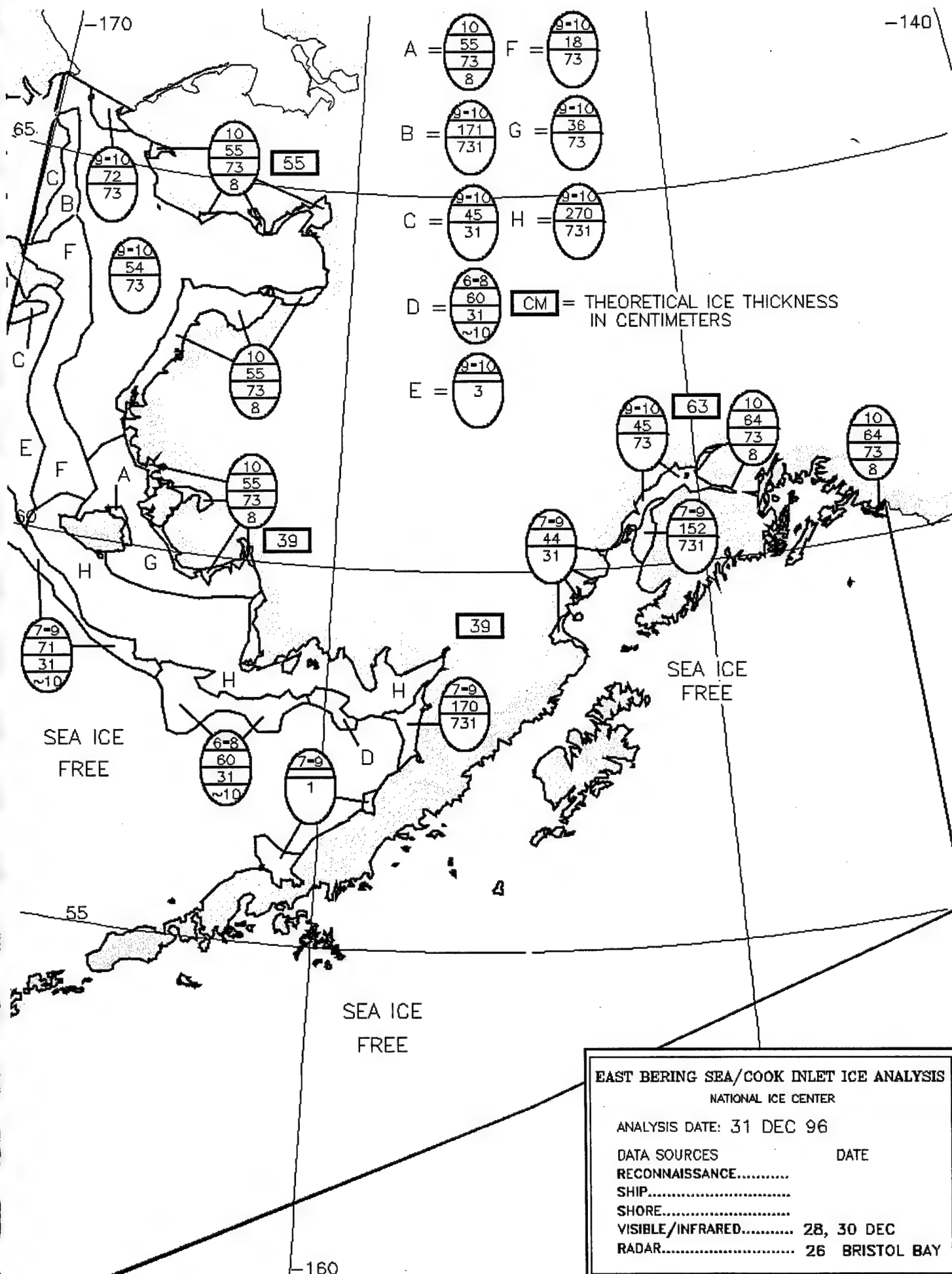






EAST BERING SEA/COOK INLET ICE ANALYSIS
 NATIONAL ICE CENTER
 ANALYSIS DATE: 24 DEC 96
 DATA SOURCES RECONNAISSANCE..... DATE
 SHIP.....
 SHORE.....
 VISIBLE/INFRARED..... 22 - 23 DEC
 RADAR.....



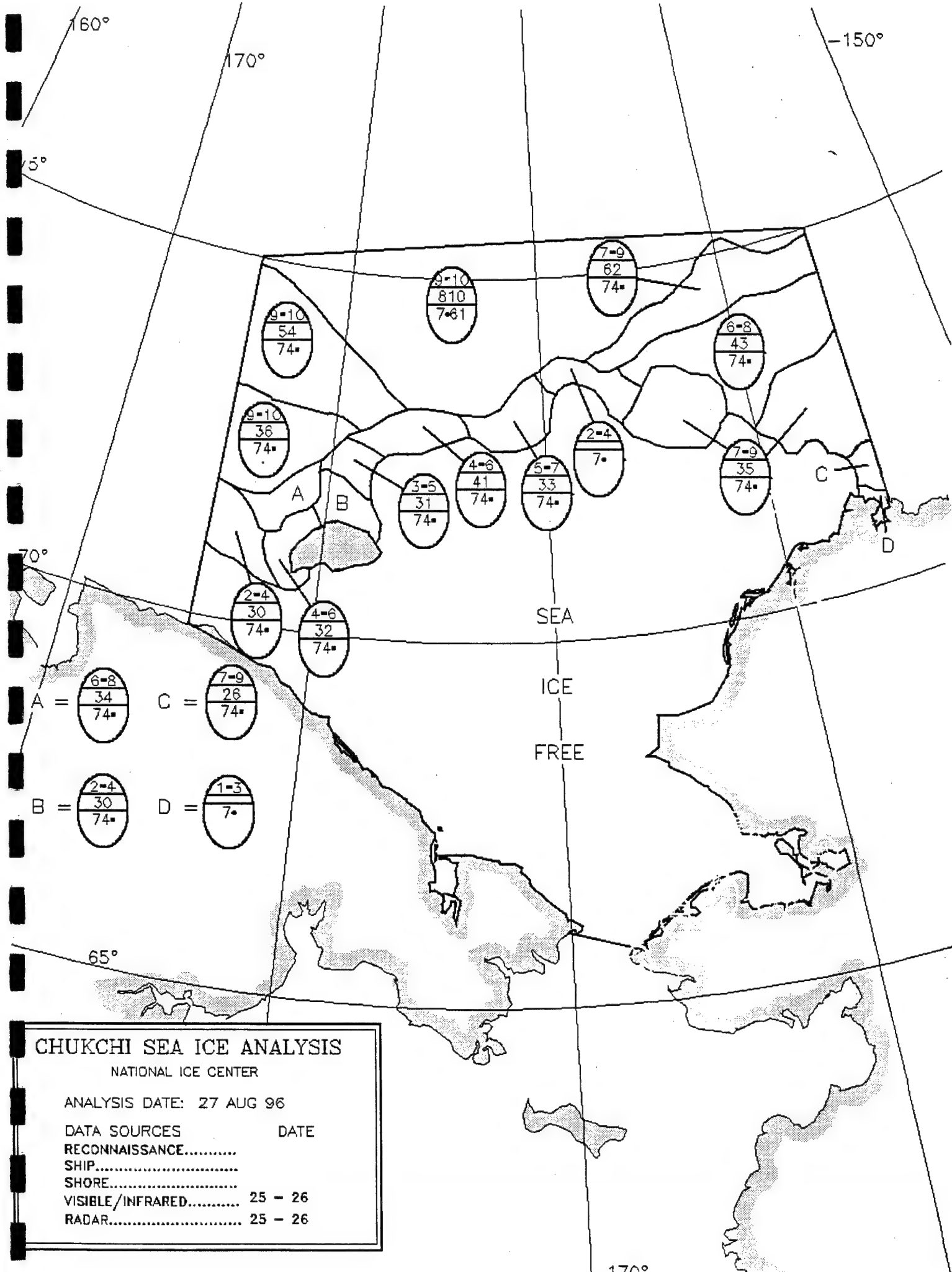


- A = $\frac{10}{55}$
 B = $\frac{9-10}{171}$
 C = $\frac{9-10}{45}$
 D = $\frac{6-8}{60}$
 E = $\frac{9-10}{3}$
 F = $\frac{9-10}{18}$
 G = $\frac{9-10}{36}$
 H = $\frac{9-10}{270}$
- CM = THEORETICAL ICE THICKNESS IN CENTIMETERS

EAST BERING SEA/COOK INLET ICE ANALYSIS
 NATIONAL ICE CENTER

ANALYSIS DATE: 31 DEC 96

DATA SOURCES RECONNAISSANCE..... DATE
 SHIP.....
 SHORE.....
 VISIBLE/INFRARED..... 28, 30 DEC
 RADAR..... 26 BRISTOL BAY



CHUKCHI SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 27 AUG 96

DATA SOURCES DATE

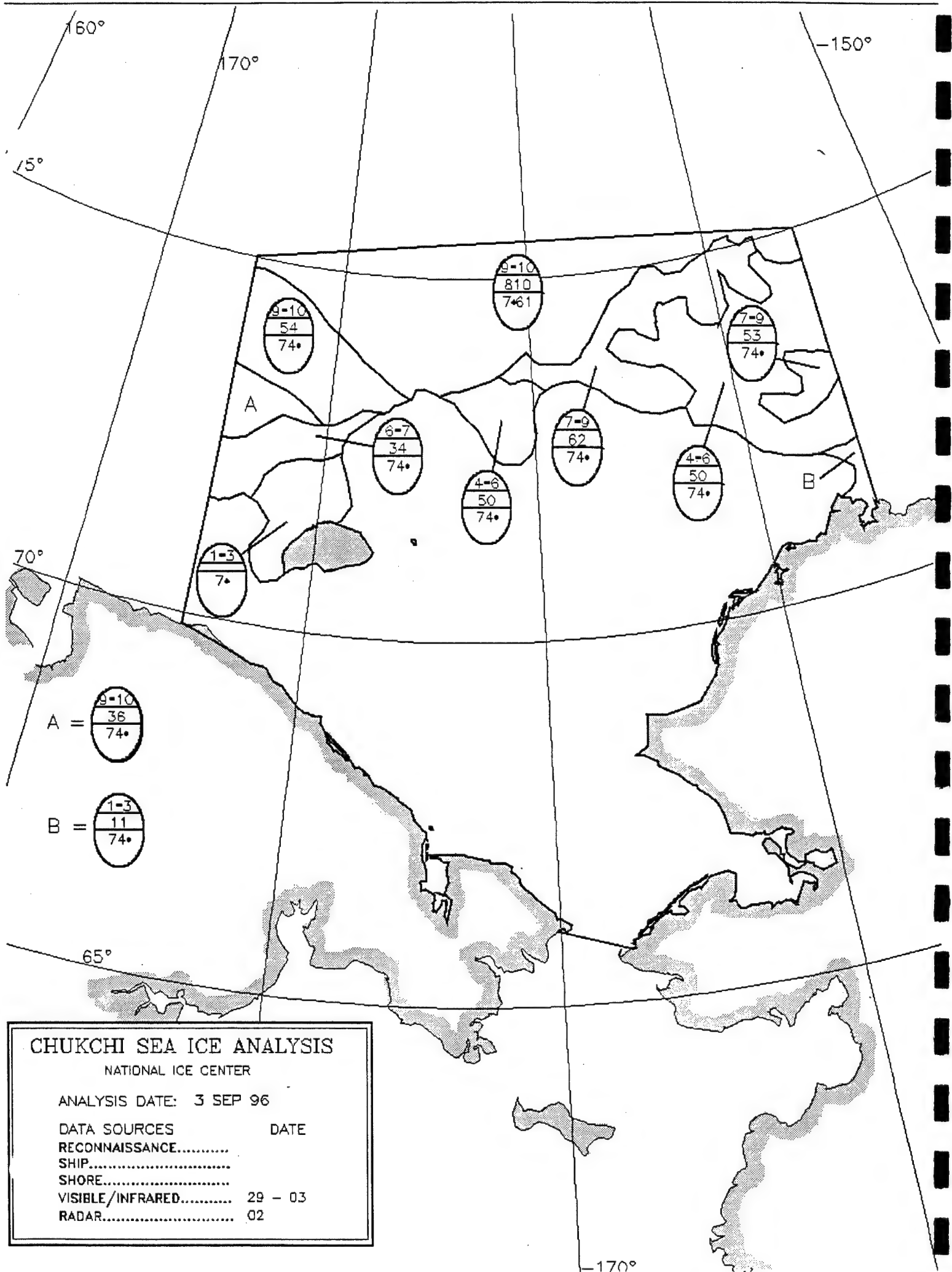
RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 25 - 26

RADAR..... 25 - 26



CHUKCHI SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 3 SEP 96

DATA SOURCES DATE

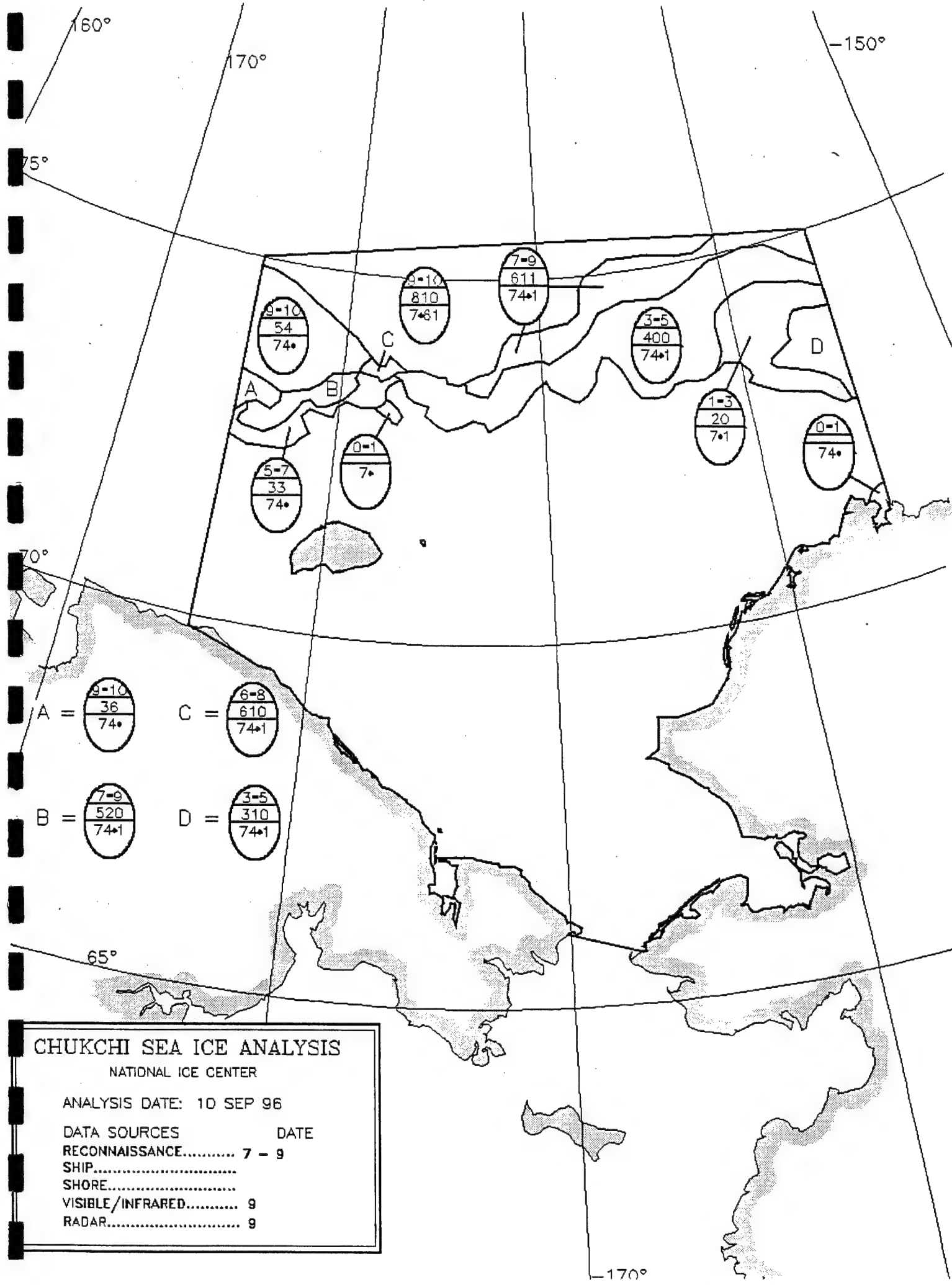
RECONNAISSANCE.....

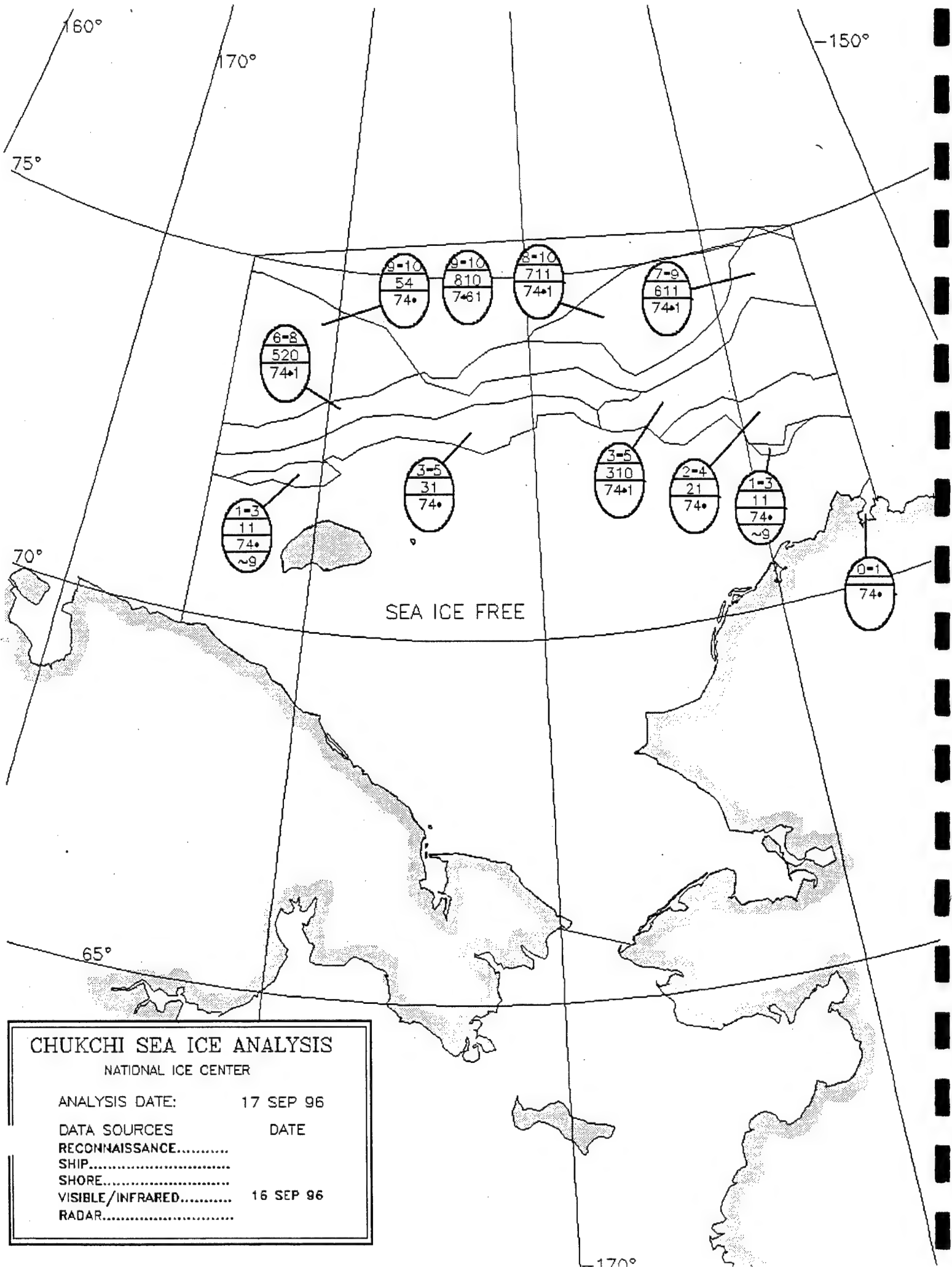
SHIP.....

SHORE.....

VISIBLE/INFRARED..... 29 - 03

RADAR..... 02





CHUKCHI SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 17 SEP 96

DATA SOURCES DATE

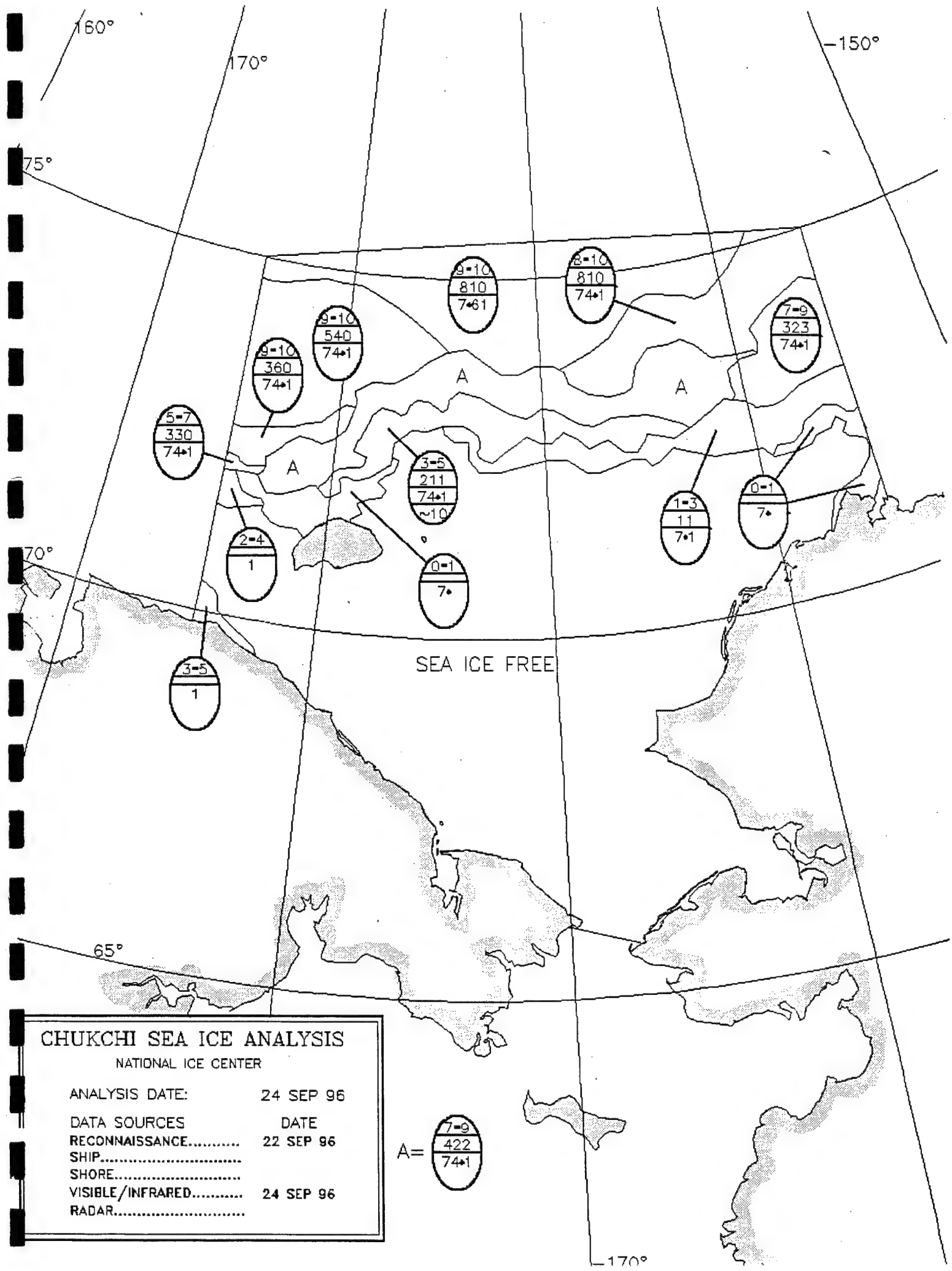
RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 16 SEP 96

RADAR.....

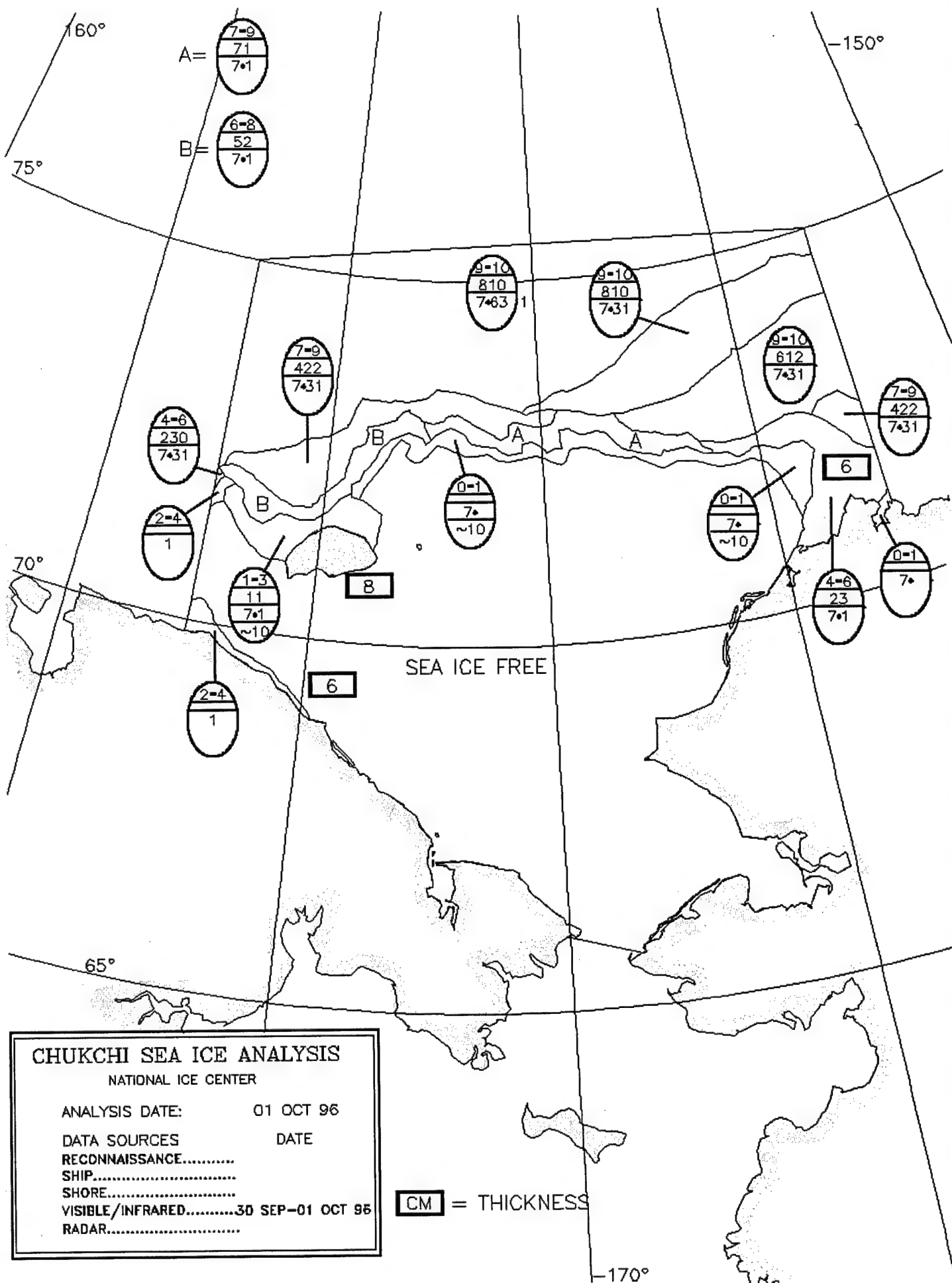


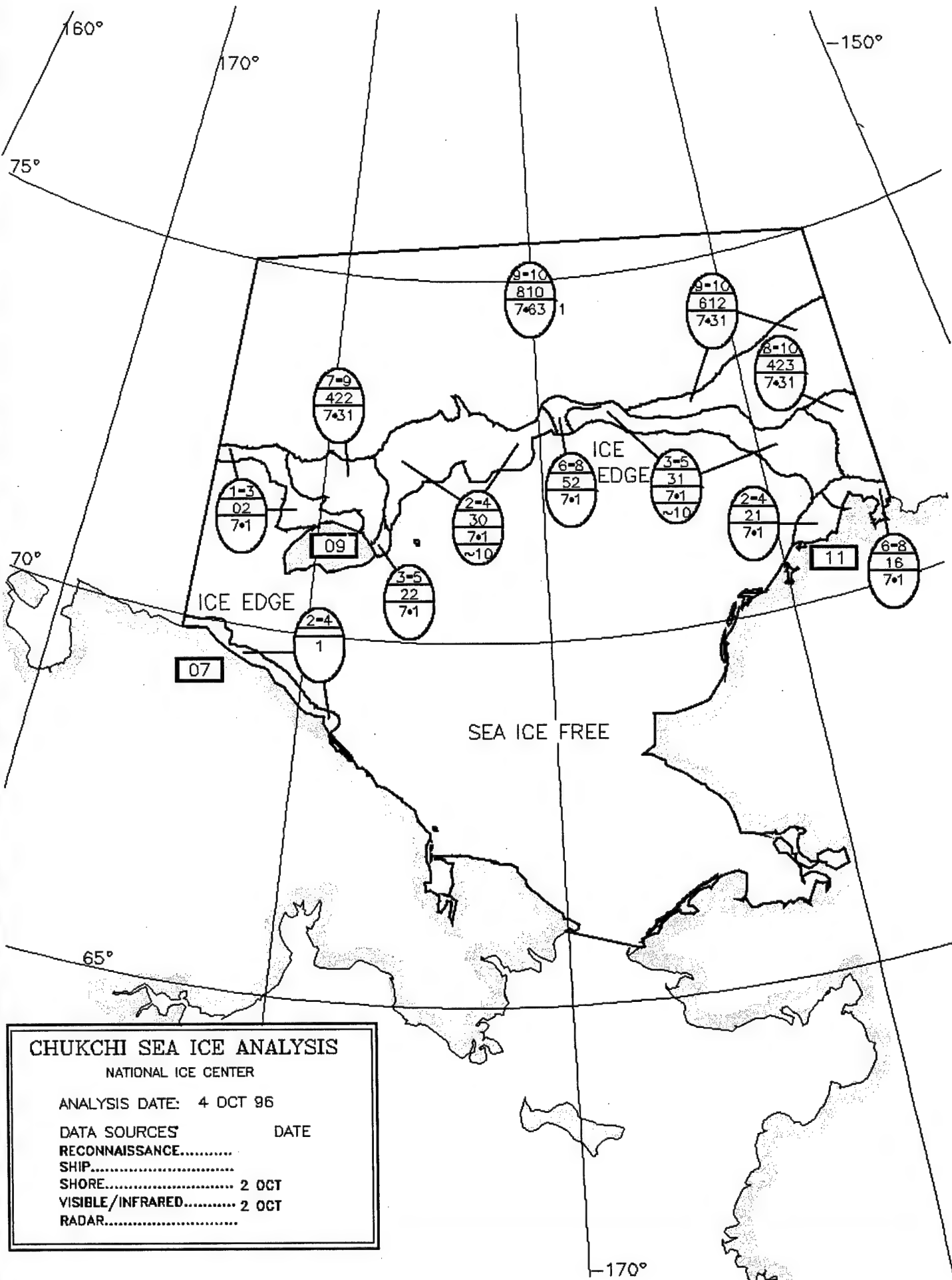
CHUKCHI SEA ICE ANALYSIS

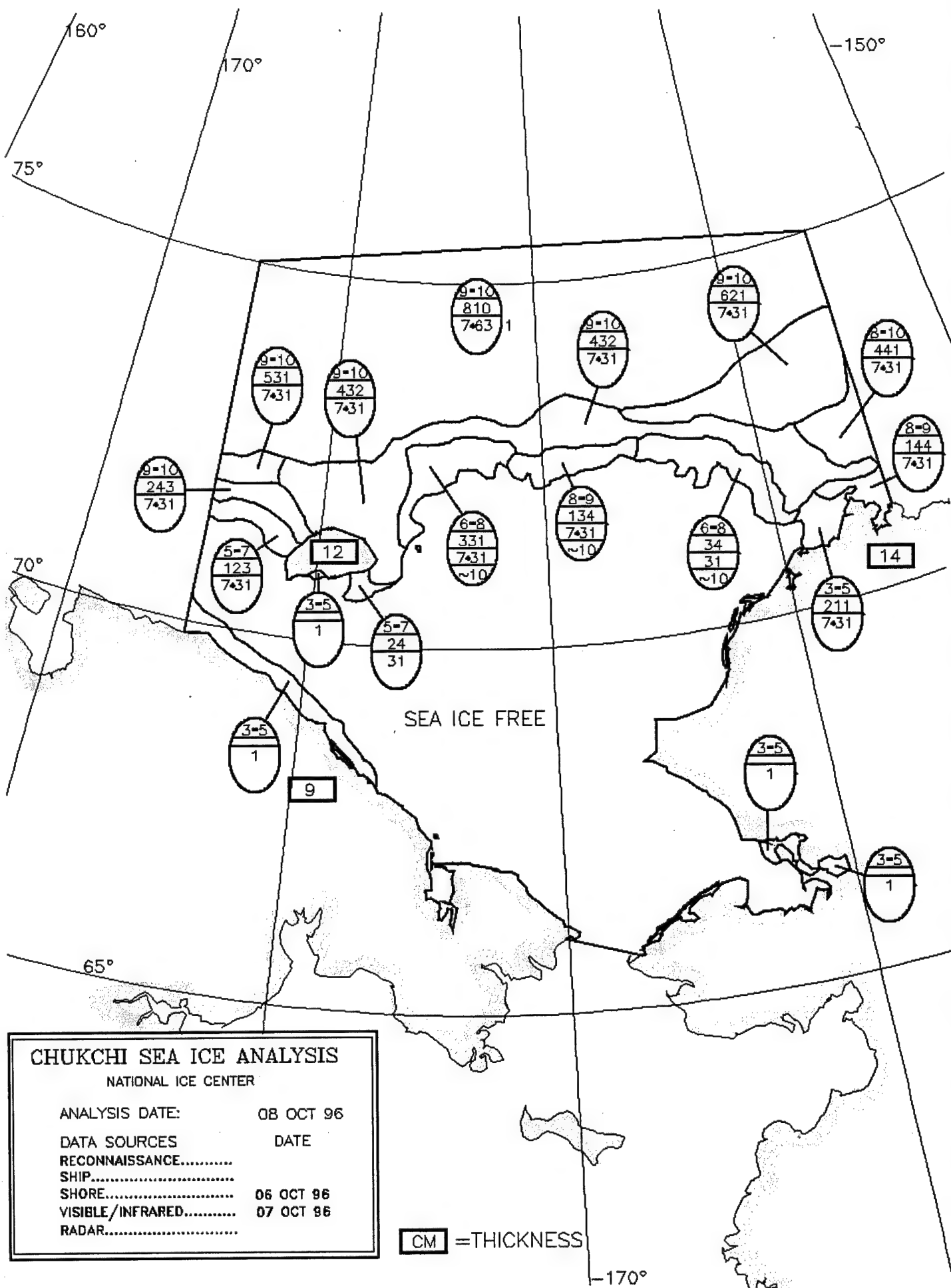
NATIONAL ICE CENTER

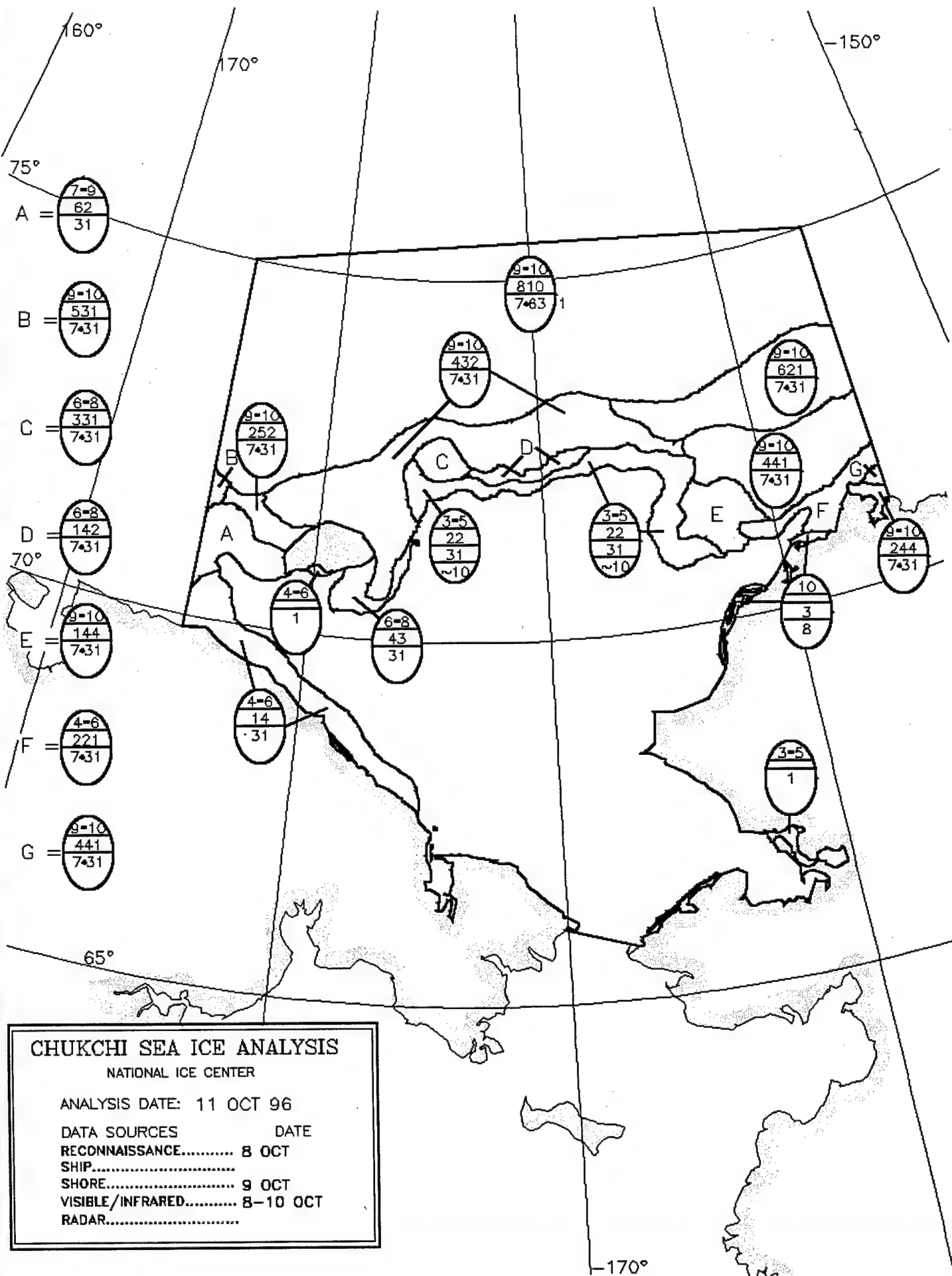
ANALYSIS DATE: 24 SEP 96
 DATA SOURCES DATE
 RECONNAISSANCE..... 22 SEP 96
 SHIP.....
 SHORE.....
 VISIBLE/INFRARED..... 24 SEP 96
 RADAR.....

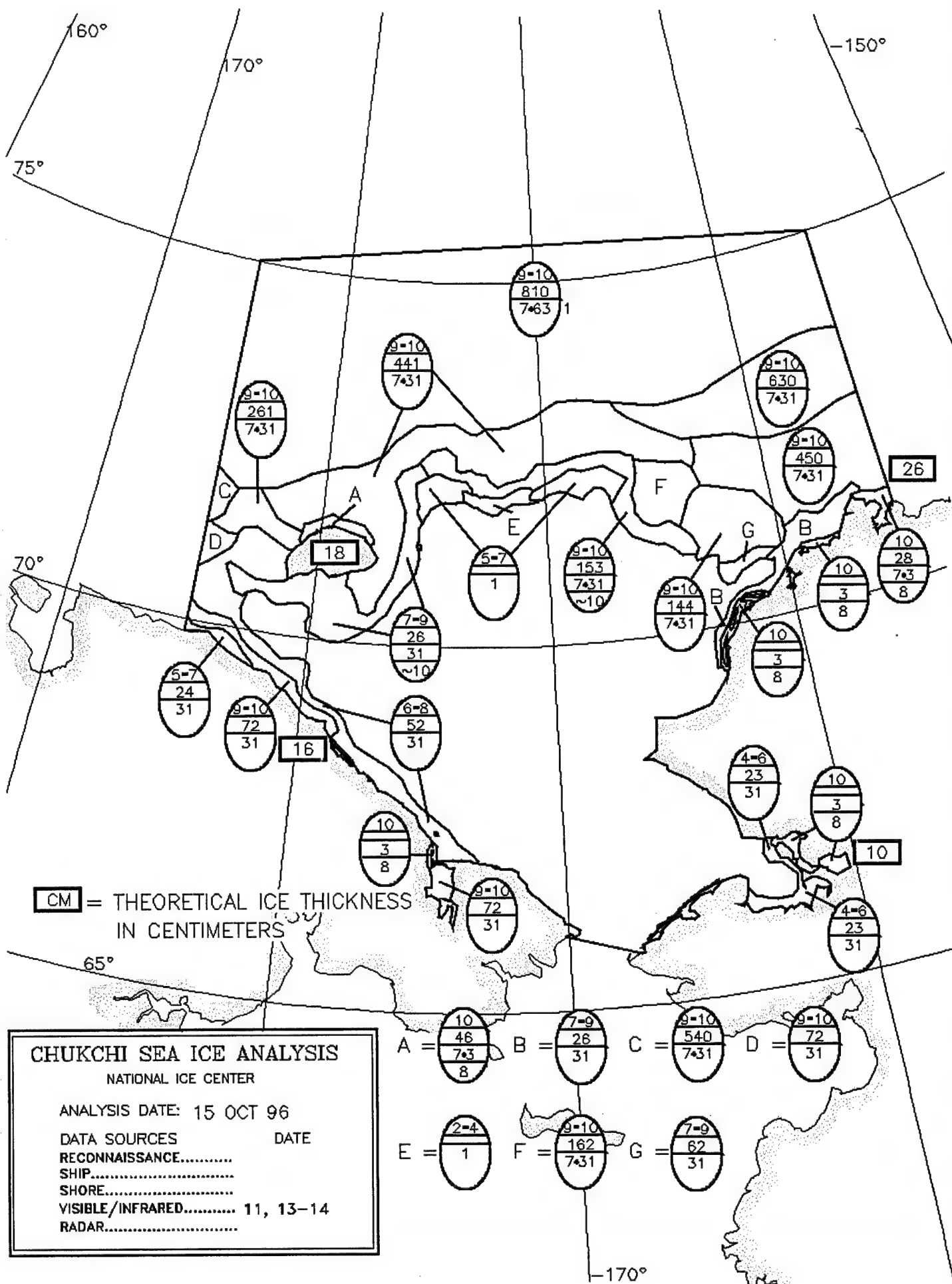
A= $\frac{7-9}{422}$
 74±1

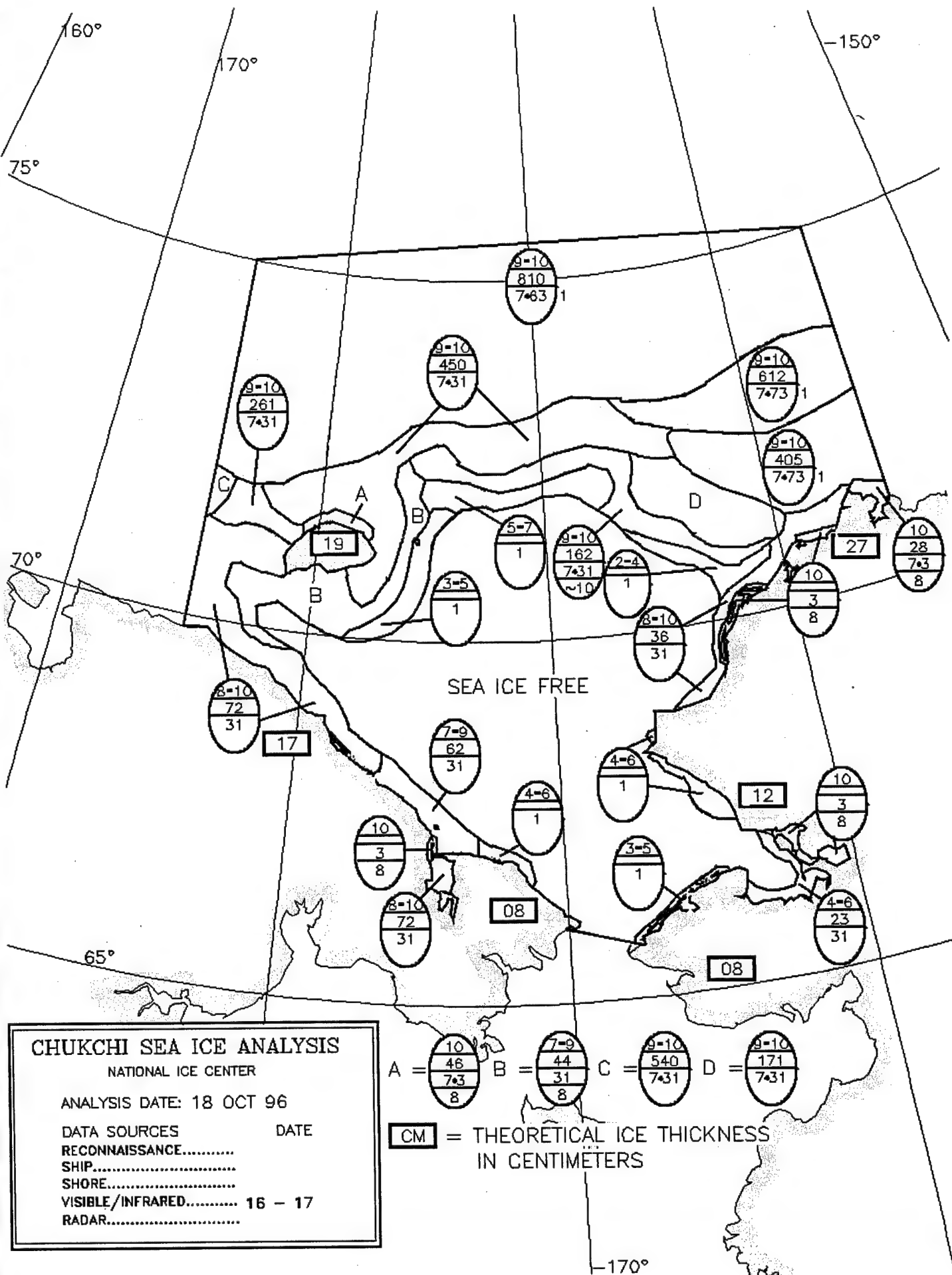


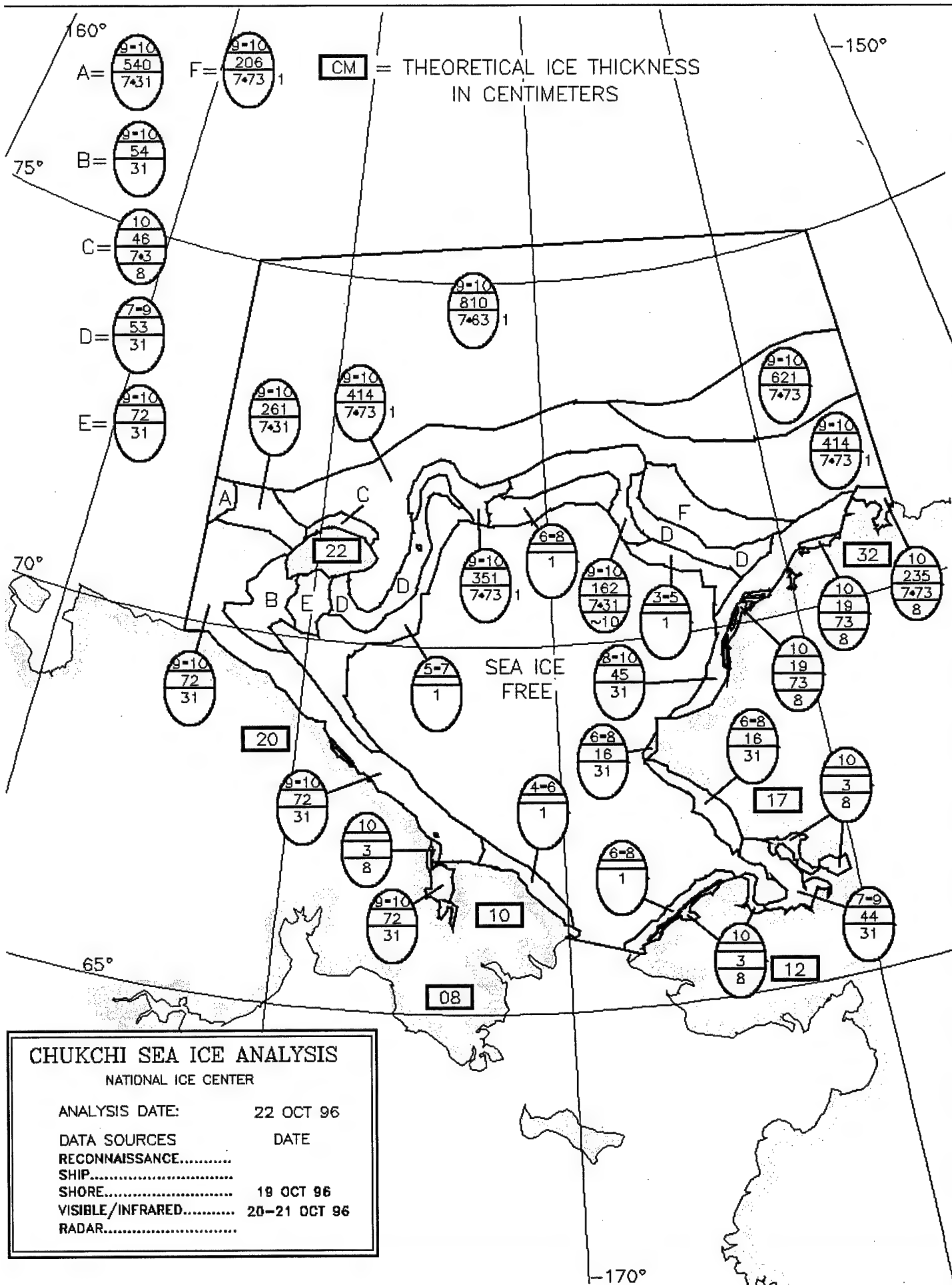


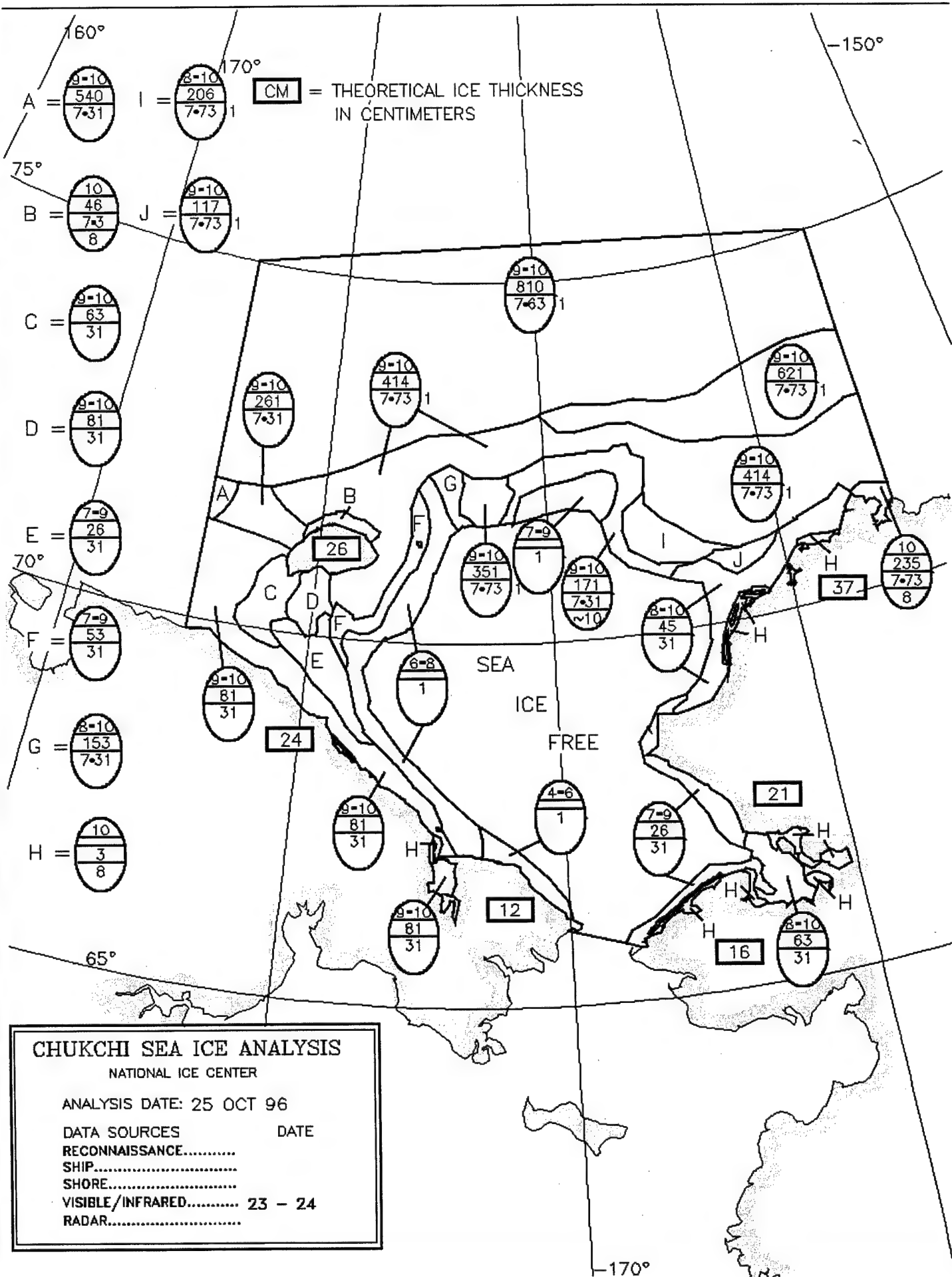


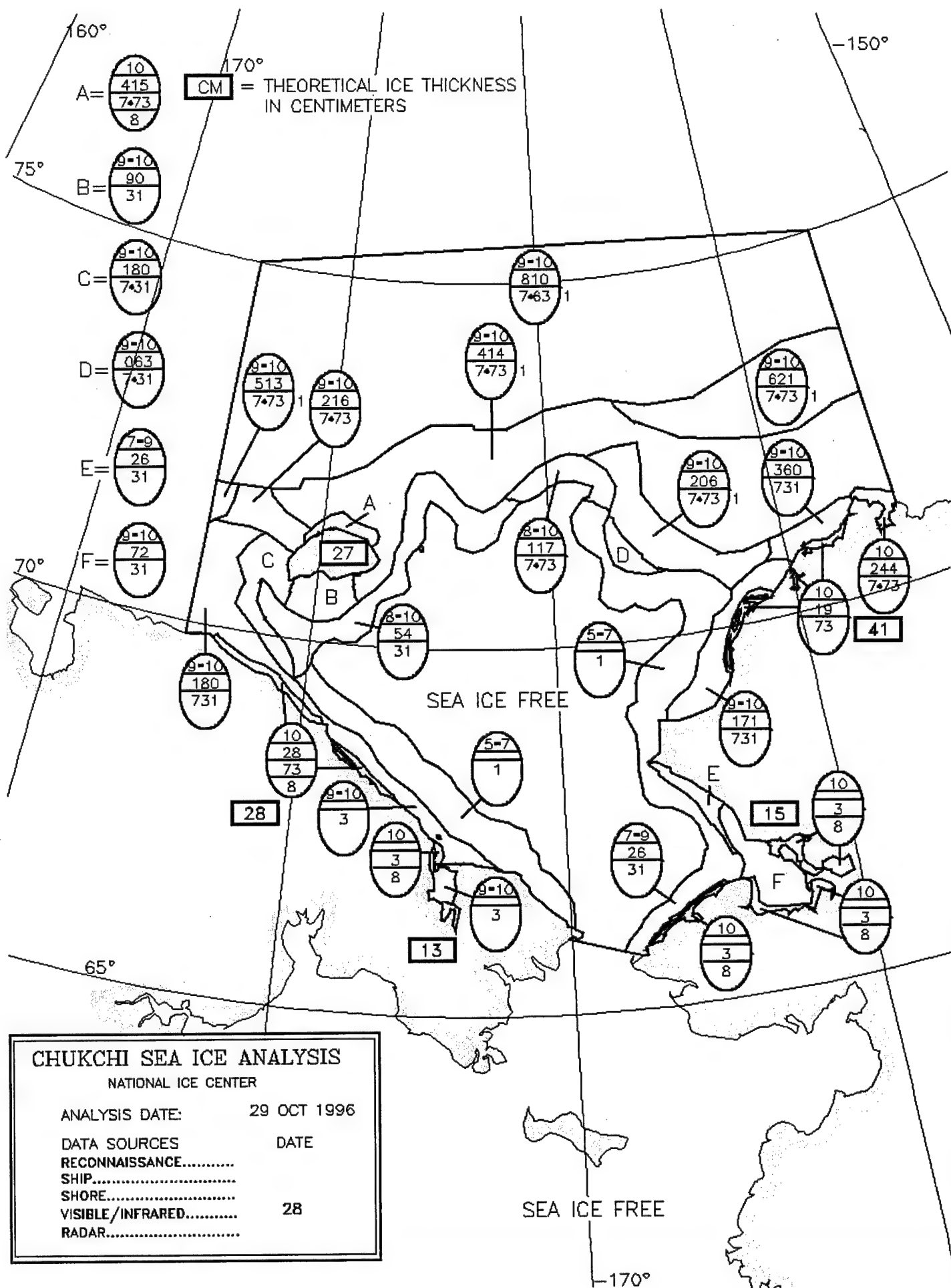


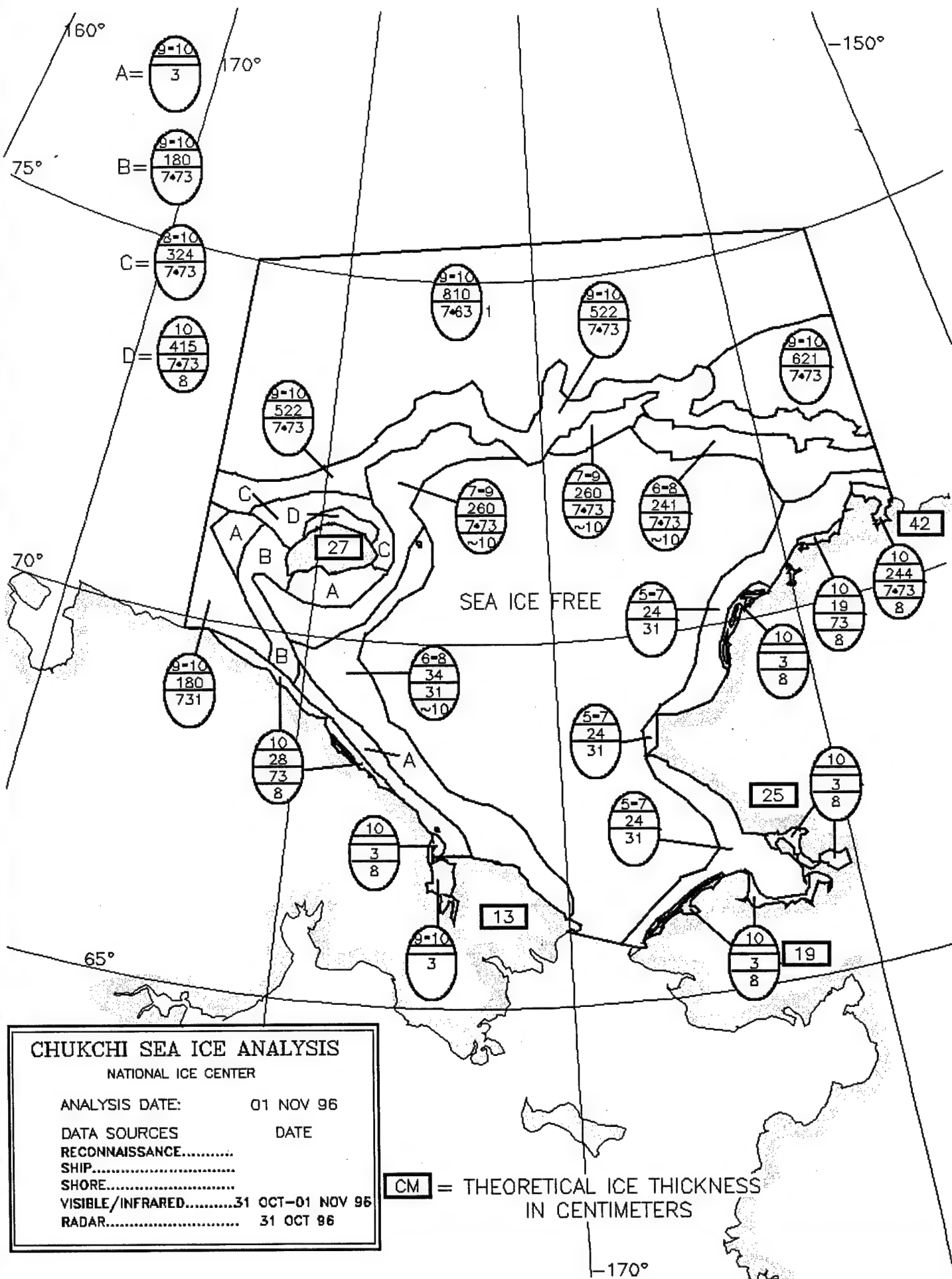


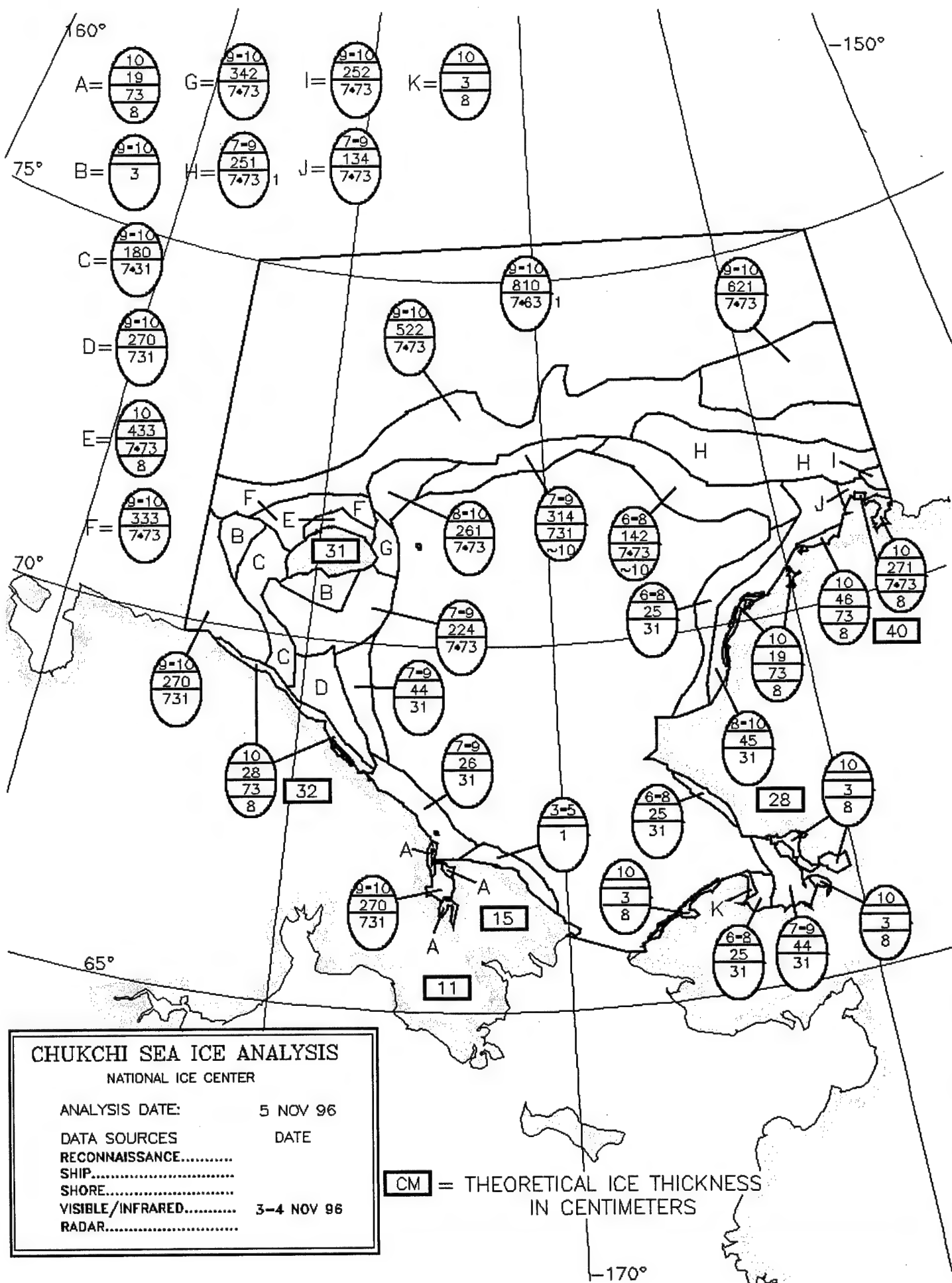


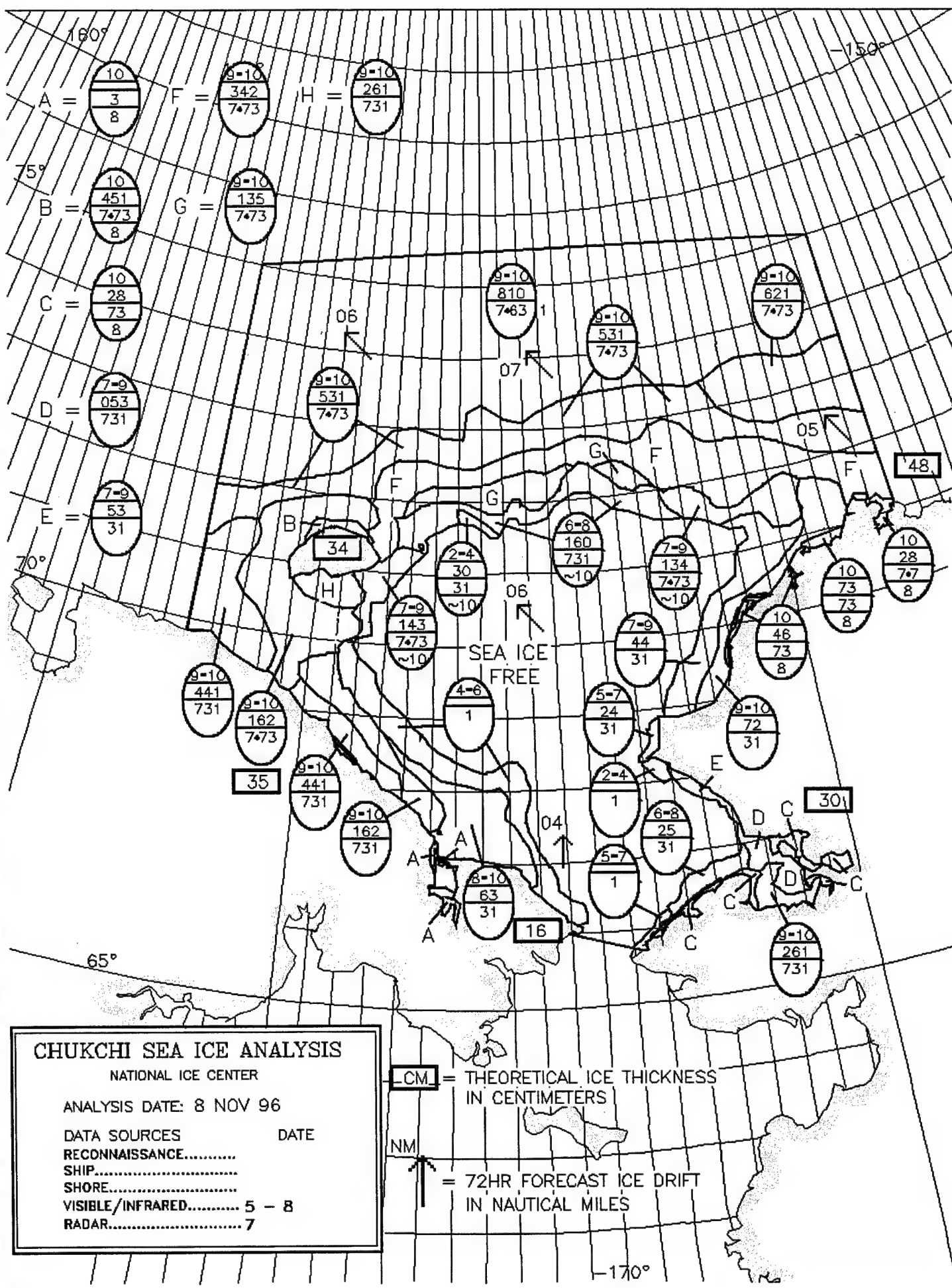


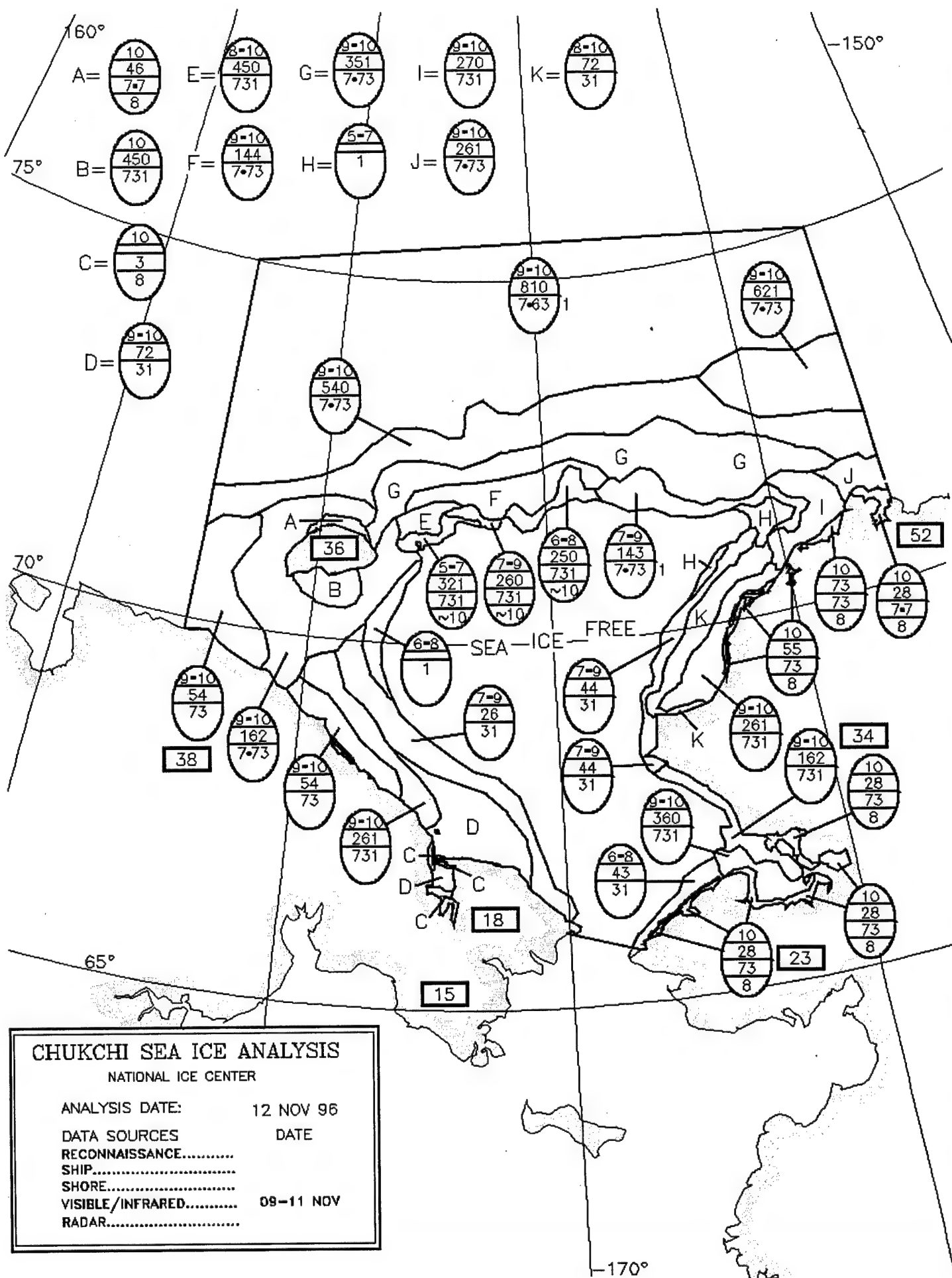


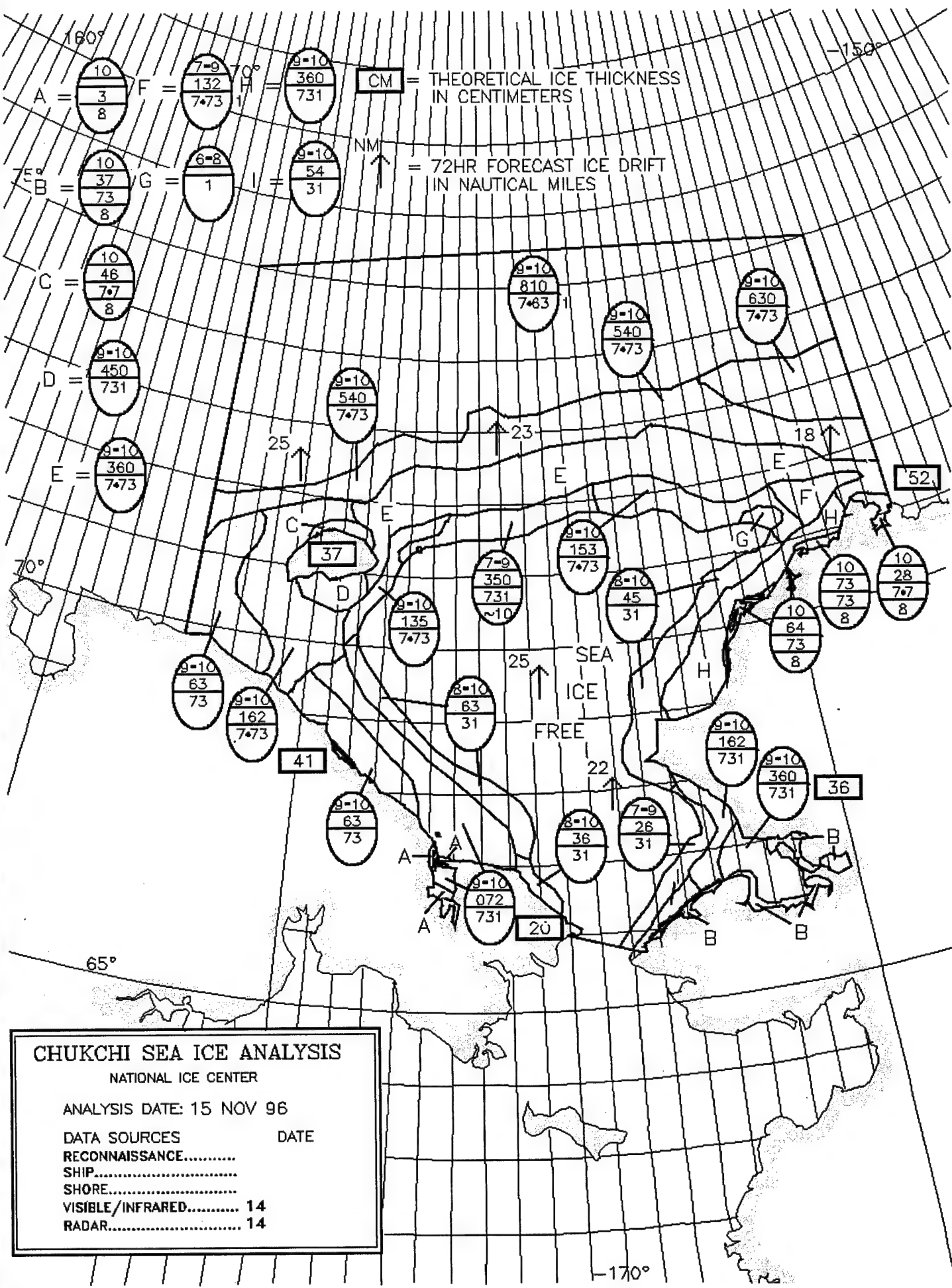


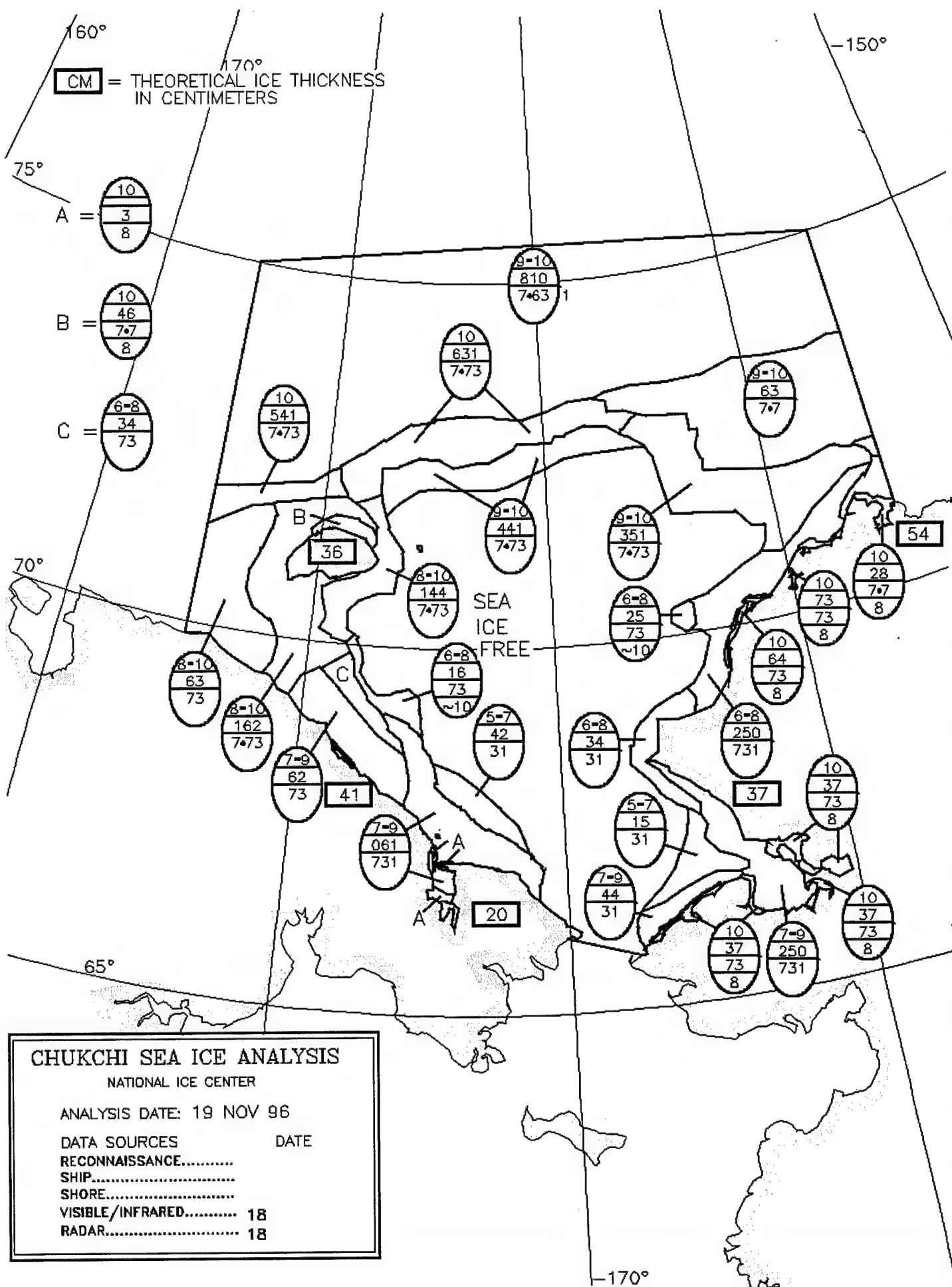


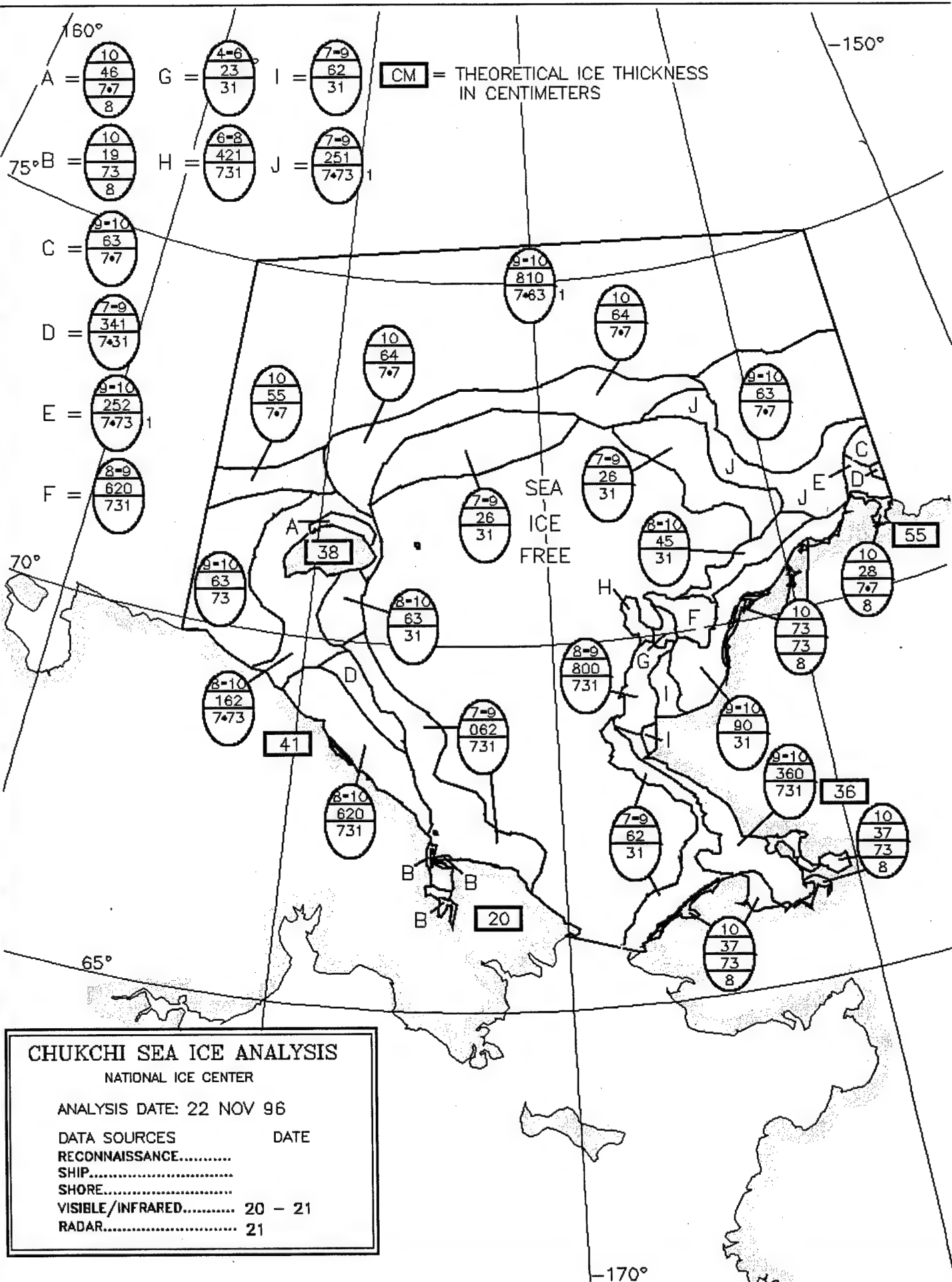


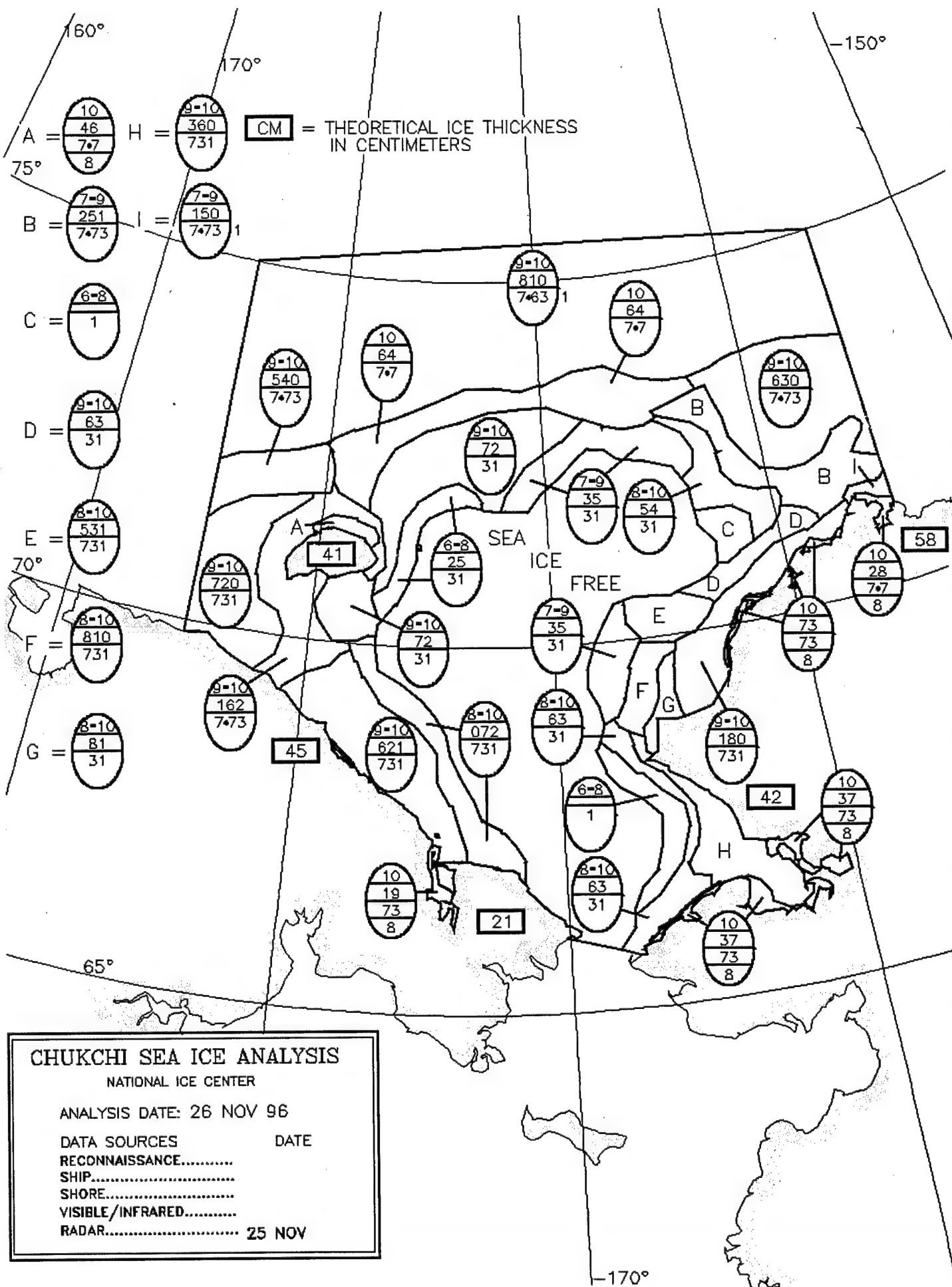


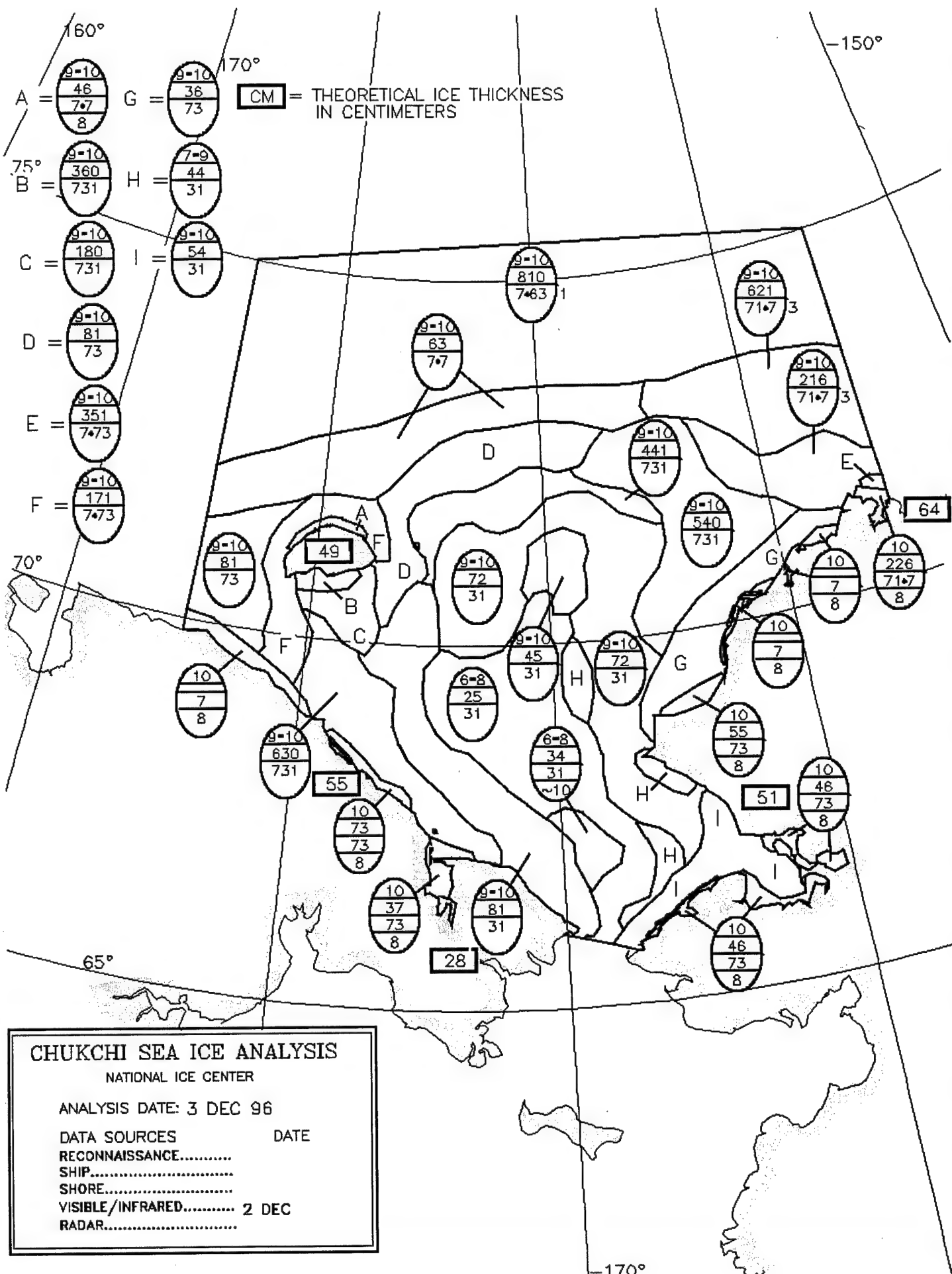












CHUKCHI SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 3 DEC 96

DATA SOURCES DATE

RECONNAISSANCE.....

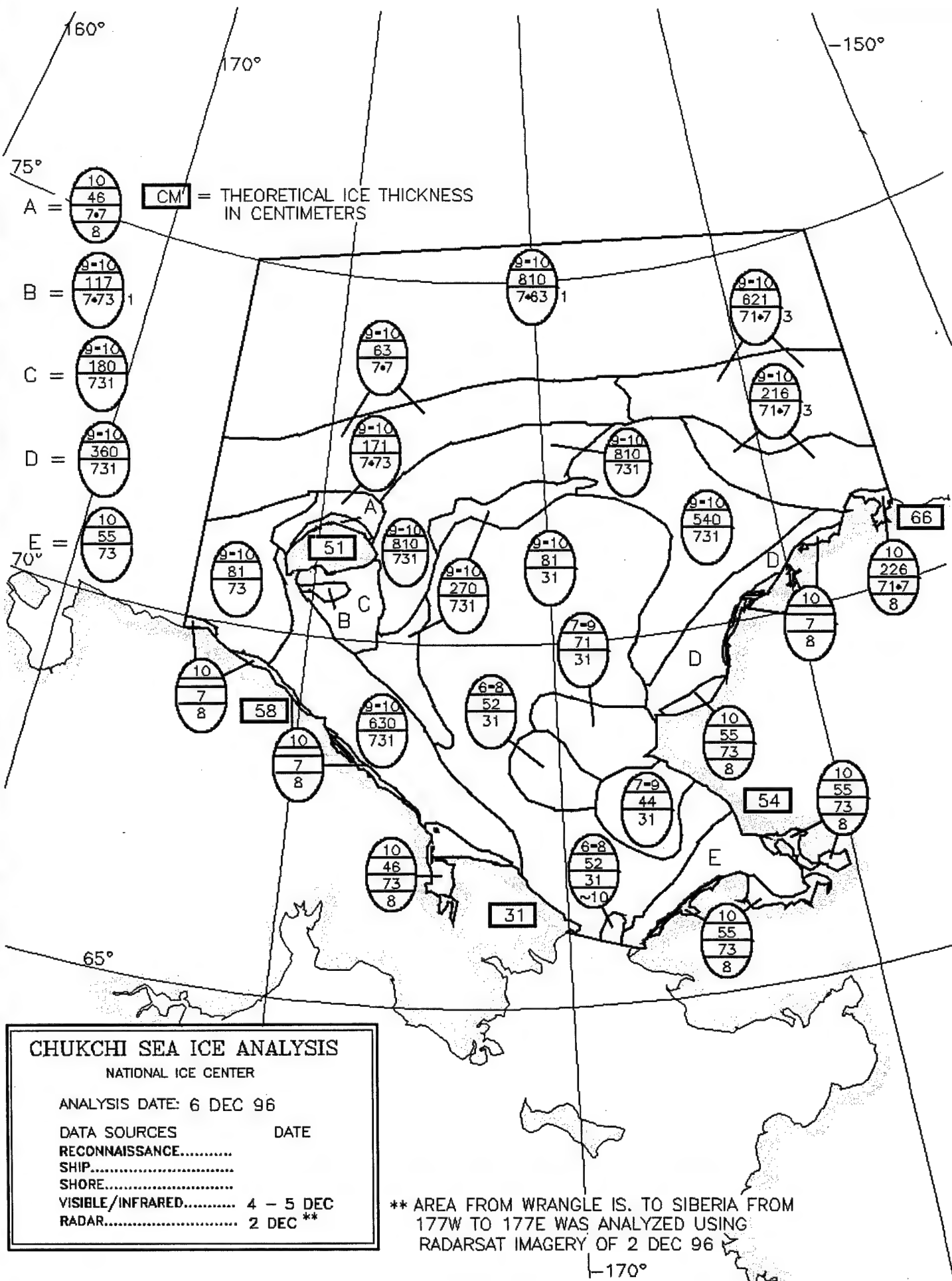
SHIP.....

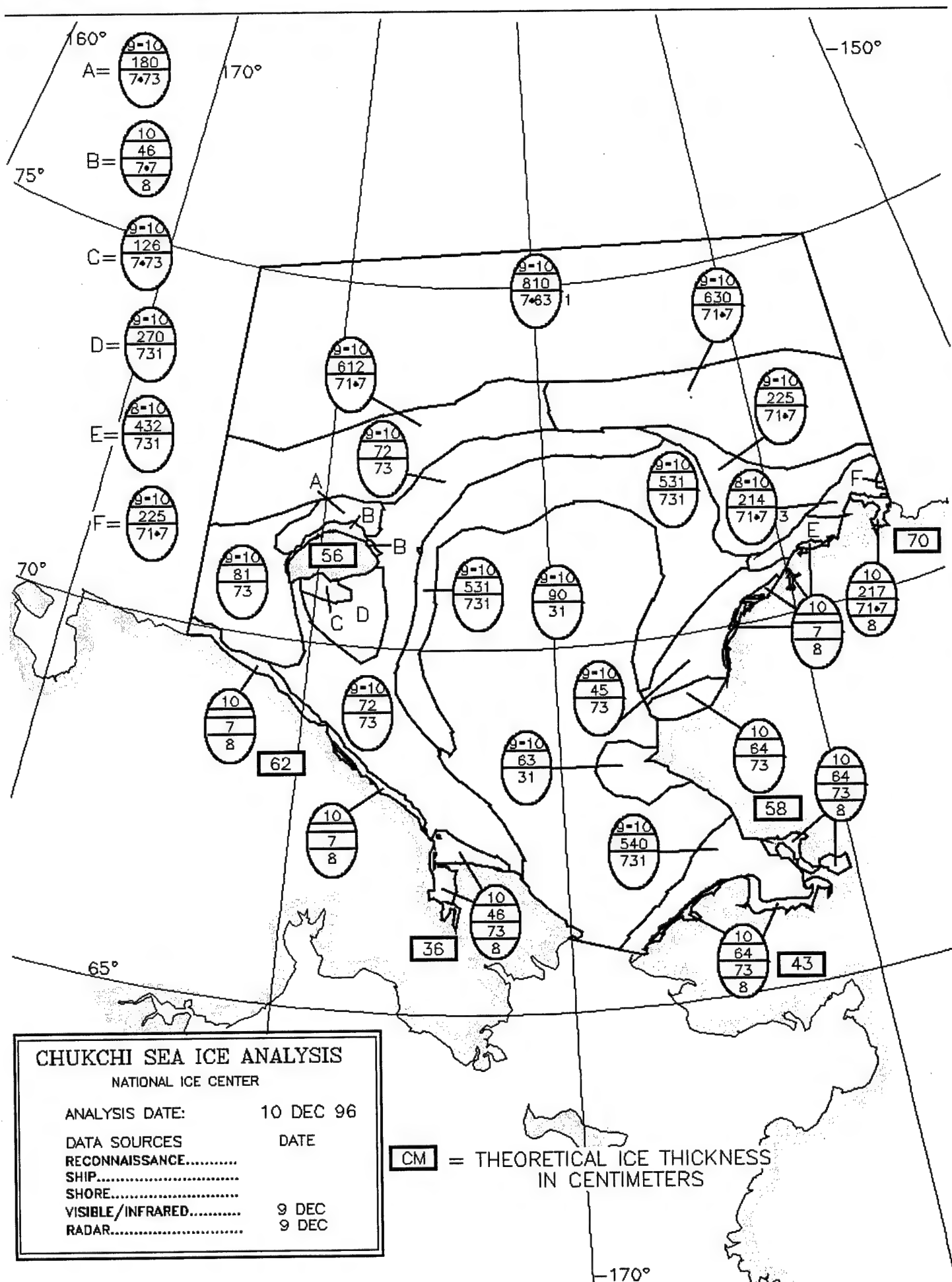
SHORE.....

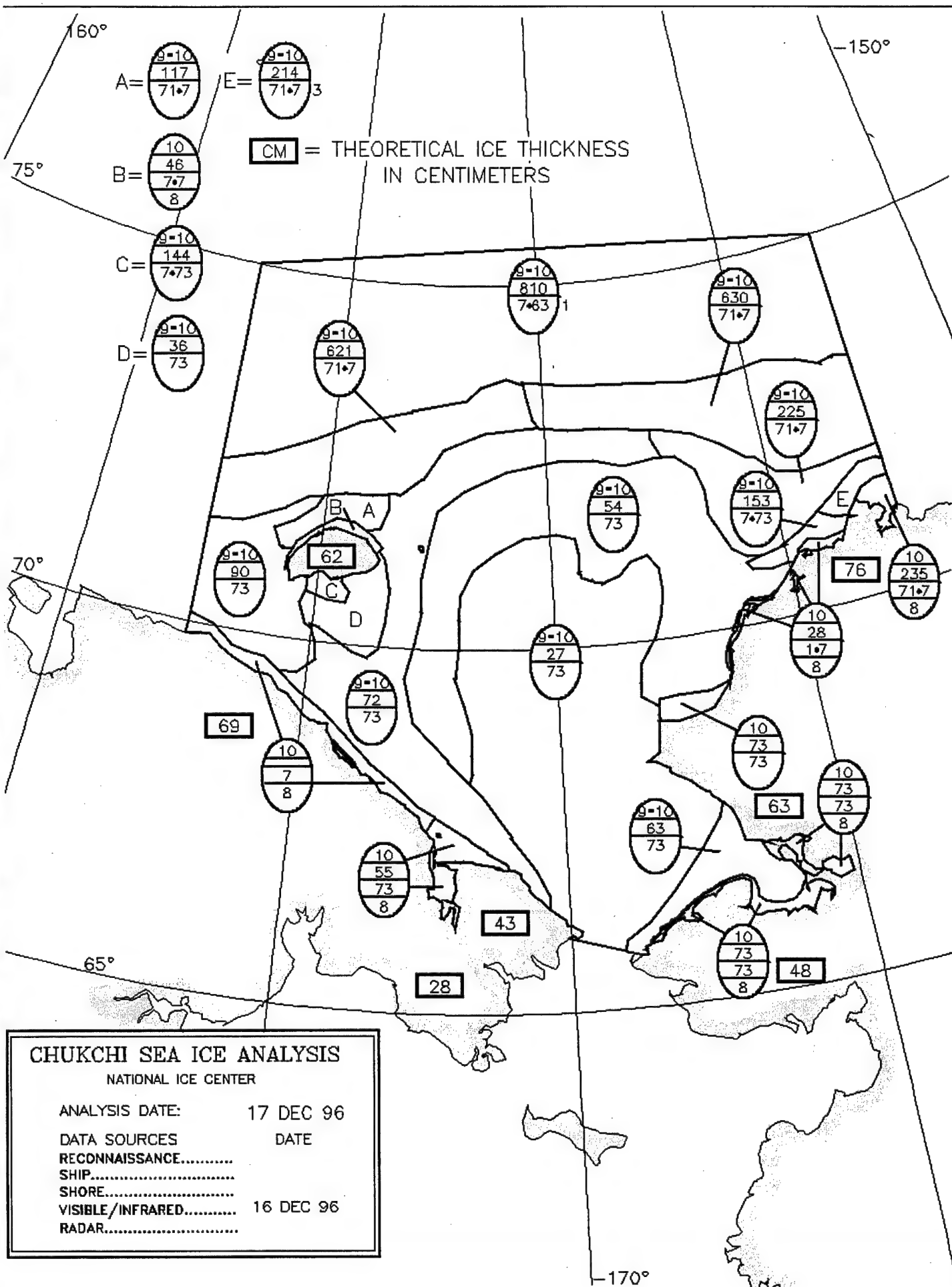
VISIBLE/INFRARED..... 2 DEC

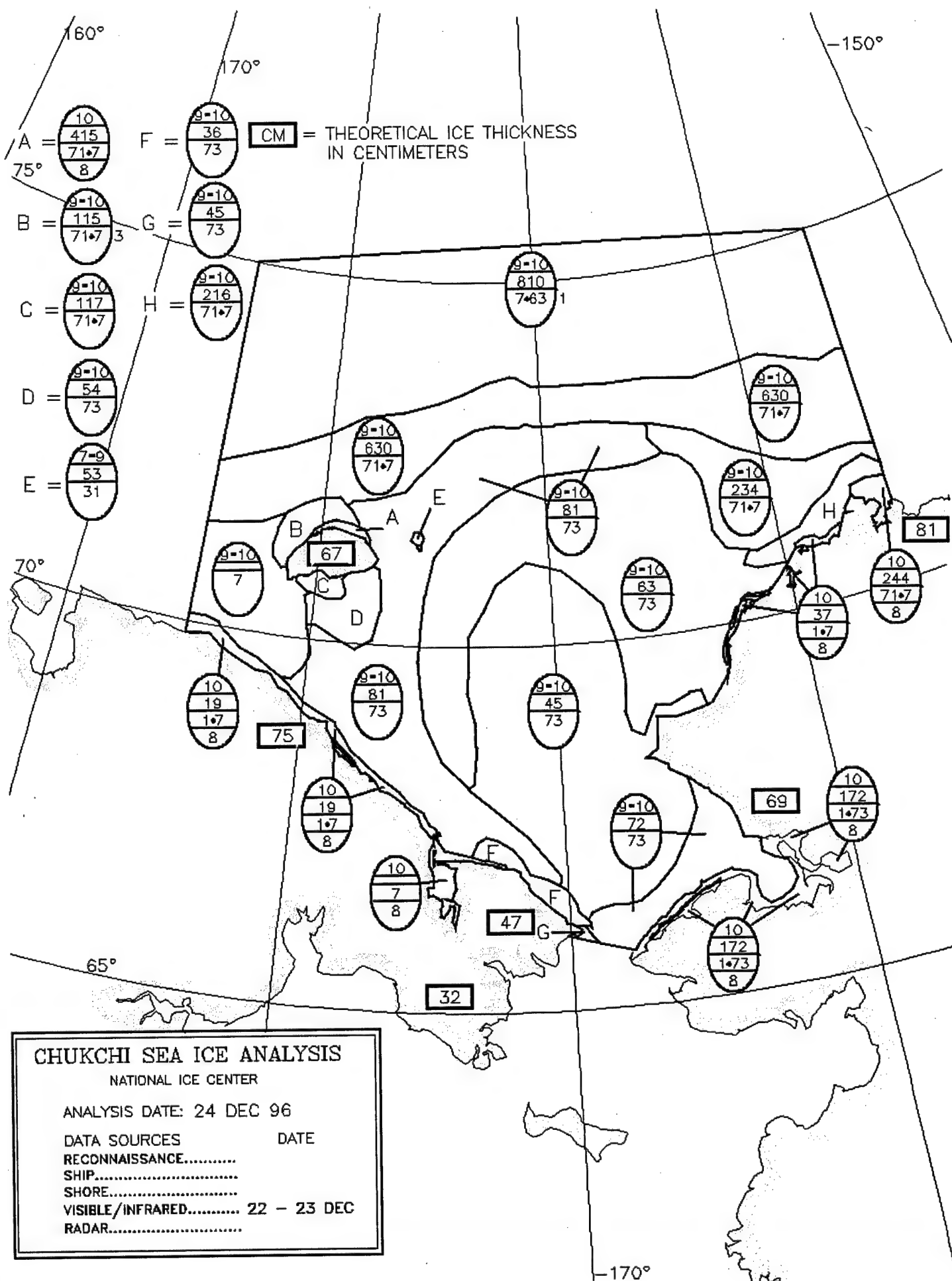
RADAR.....

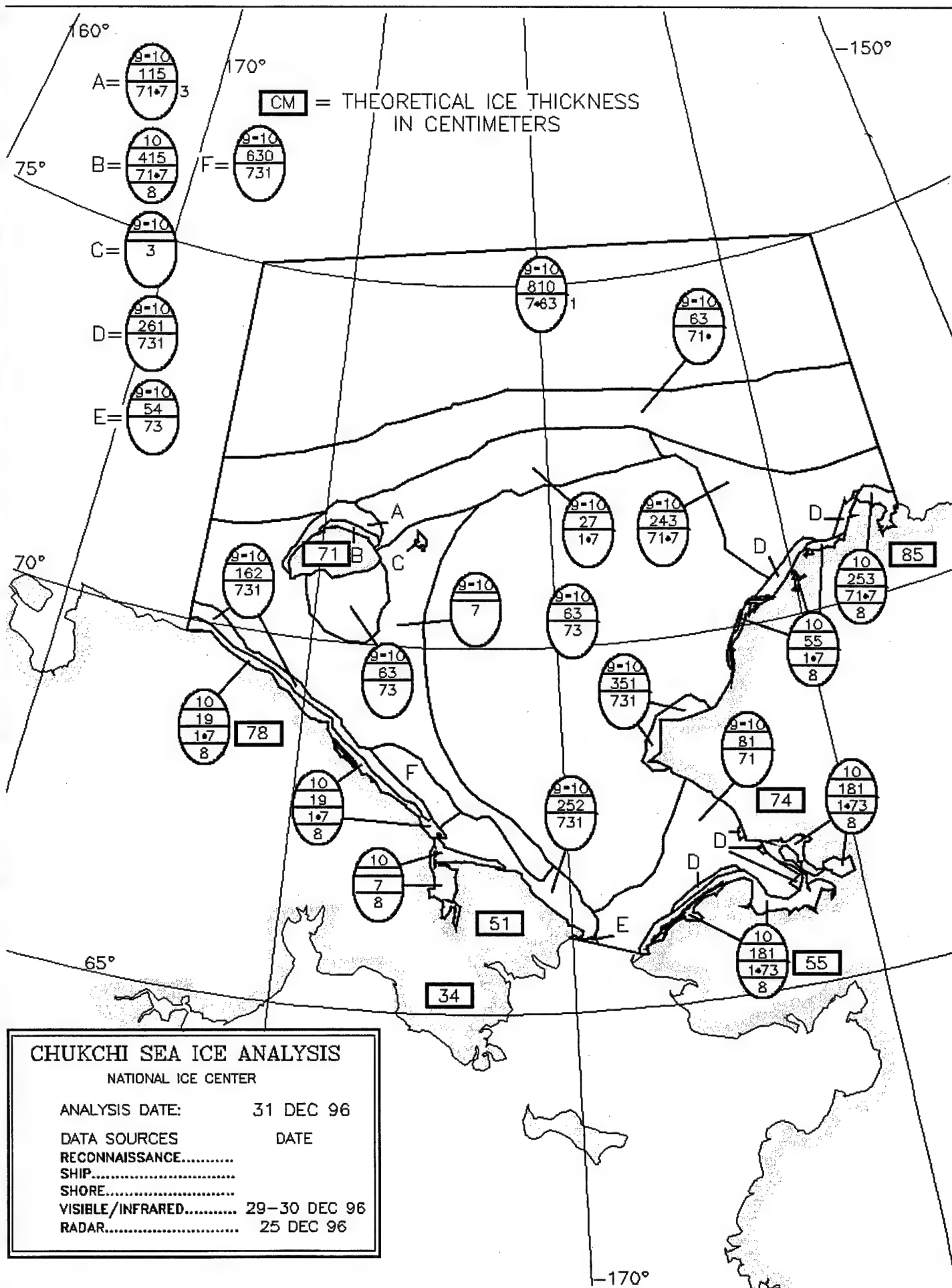
170°

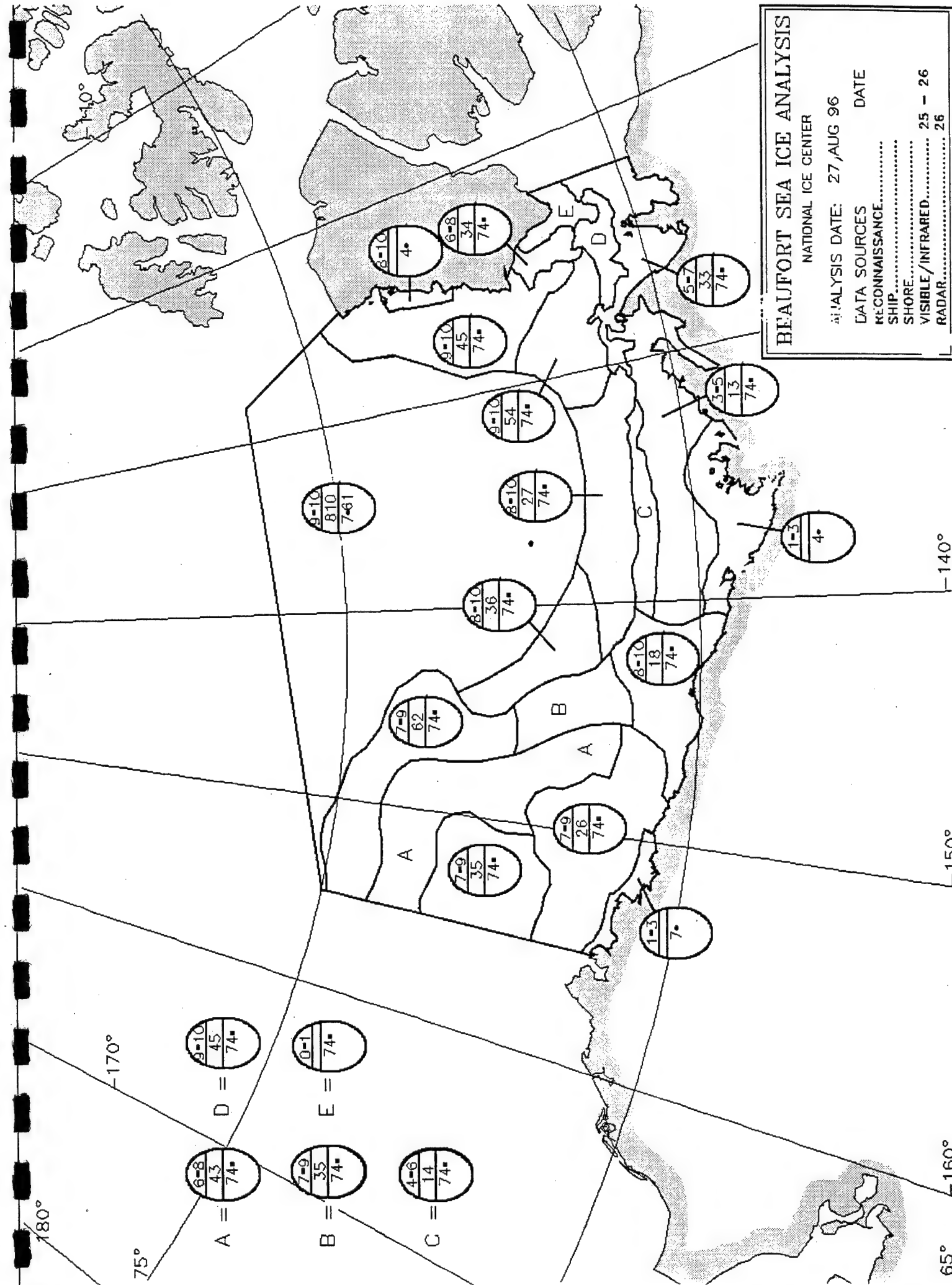












BEAUFORT SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 27, AUG 96 DATE

DATA SOURCES

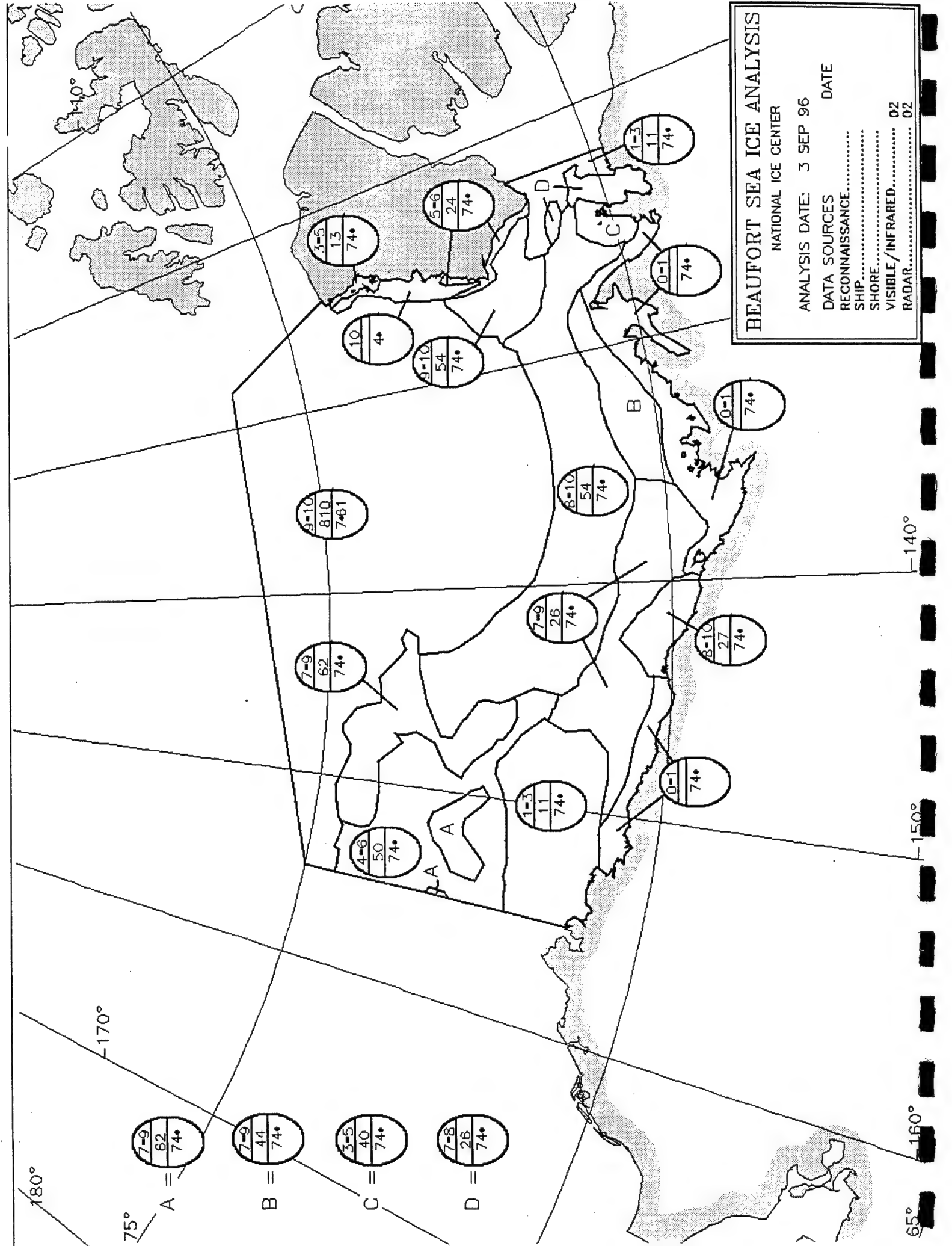
RECONNAISSANCE

SHIP

SHORE

VISIBLE/INFRARED..... 25 - 26

RADAR..... 26

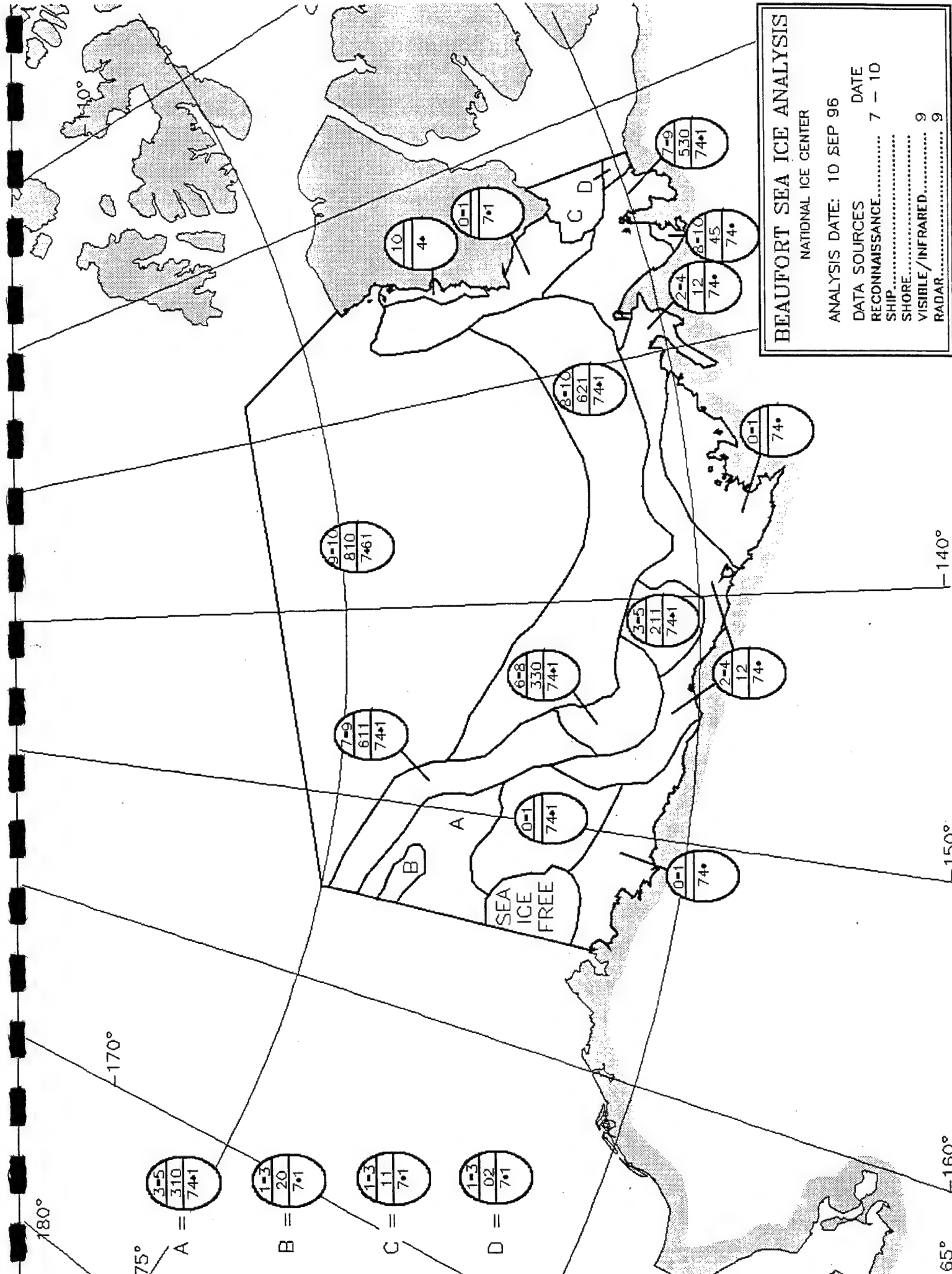


BEAUFORT SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 3 SEP 96
 DATA SOURCES
 RECONNAISSANCE
 SHIP
 SHORE
 VISIBLE/INFRARED
 RADAR

DATE
 02
 02



BEAUFORT SEA ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 10 SEP 96

DATA SOURCES

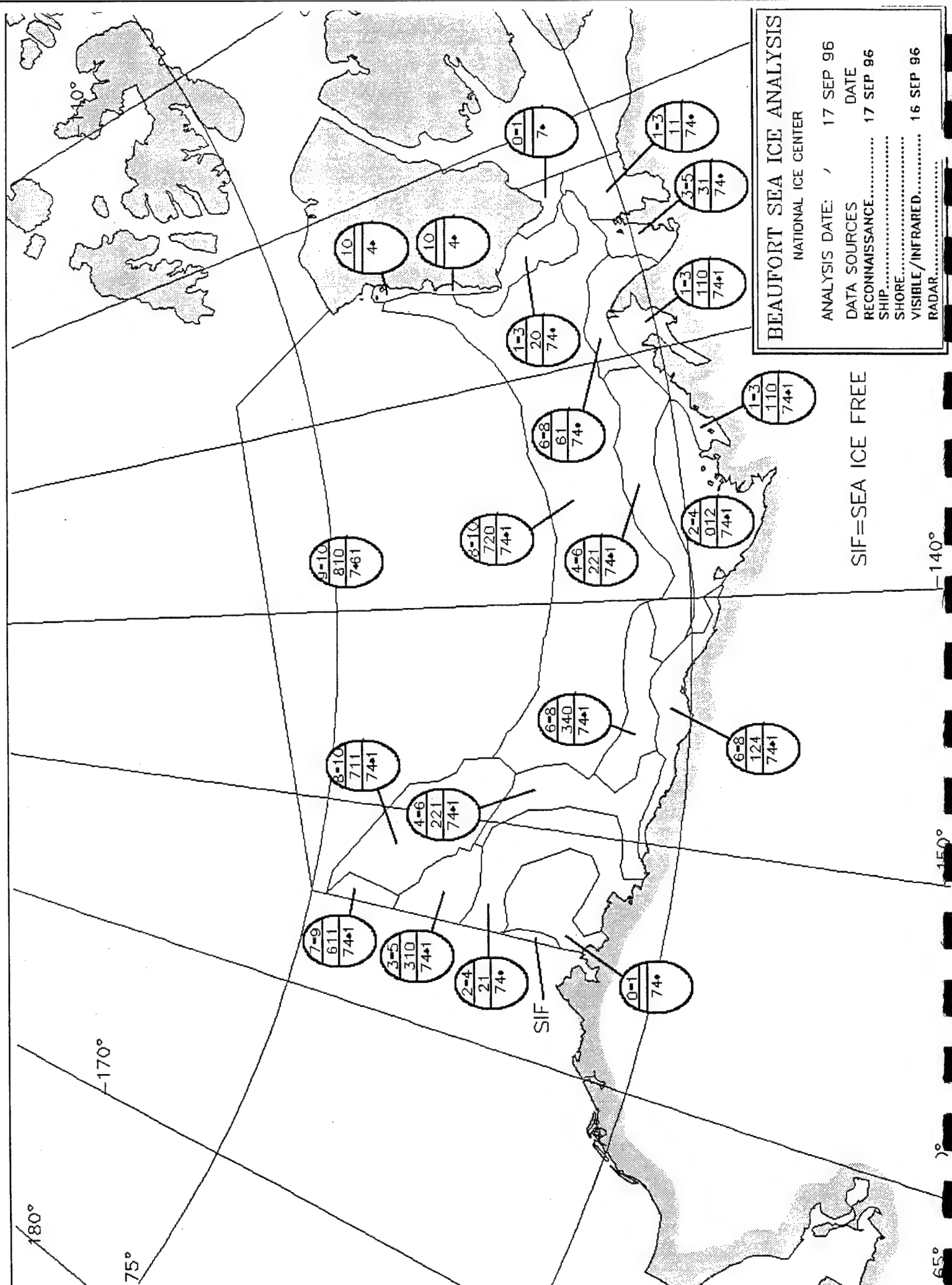
RECONNAISSANCE..... 7 - 10

SHIP.....

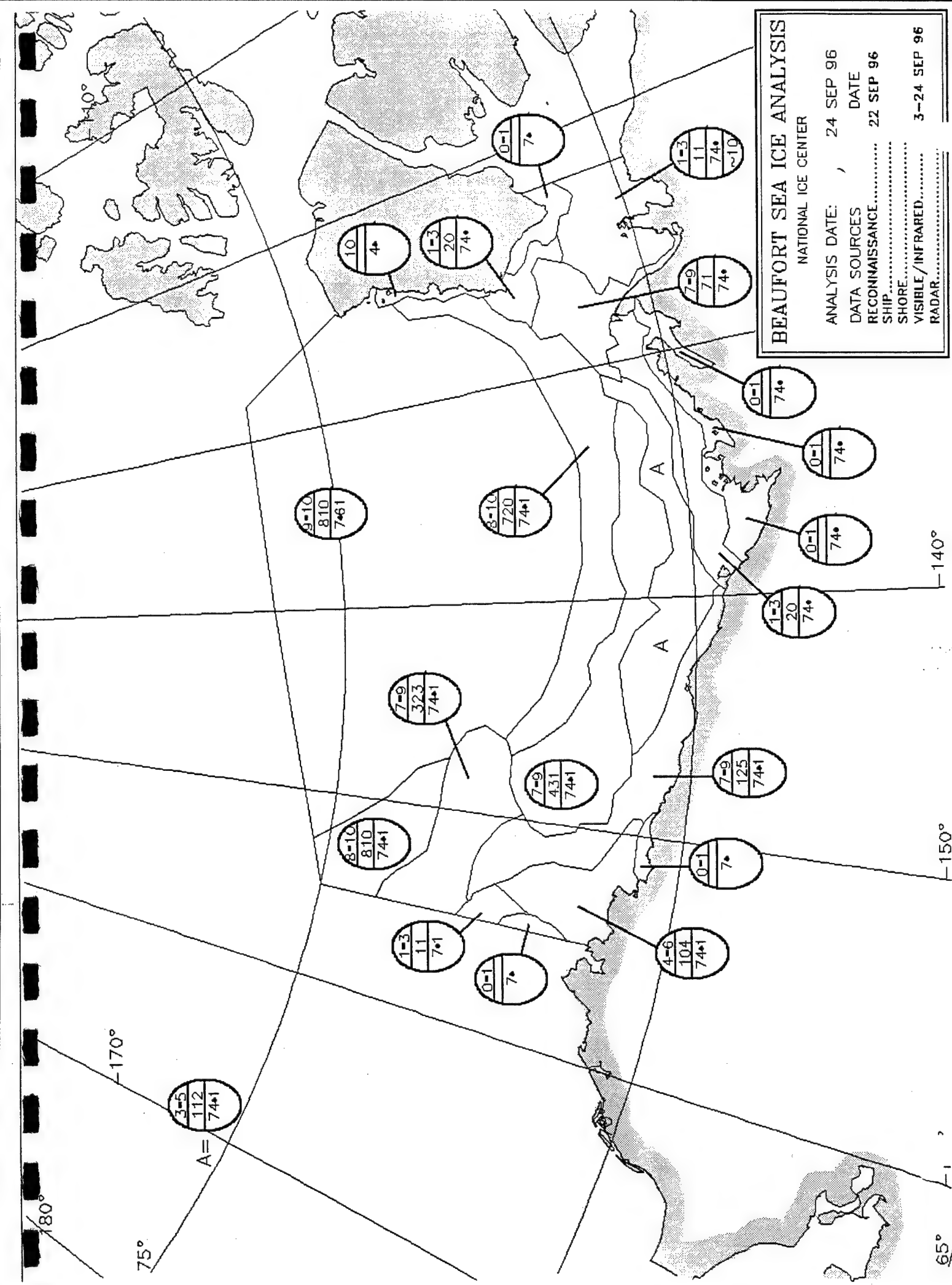
SHORE.....

VISIBLE/INFRARED..... 9

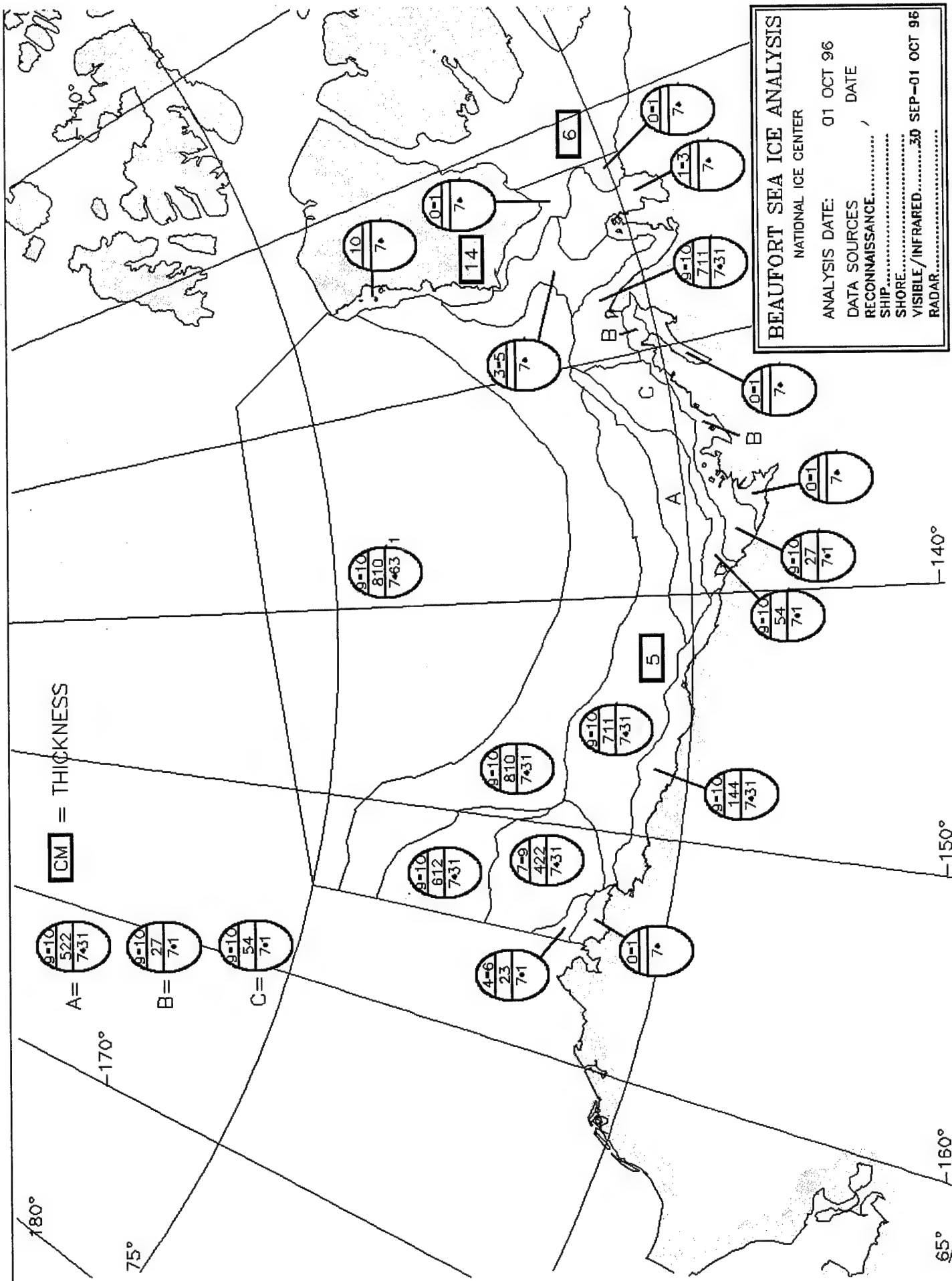
RADAR..... 9

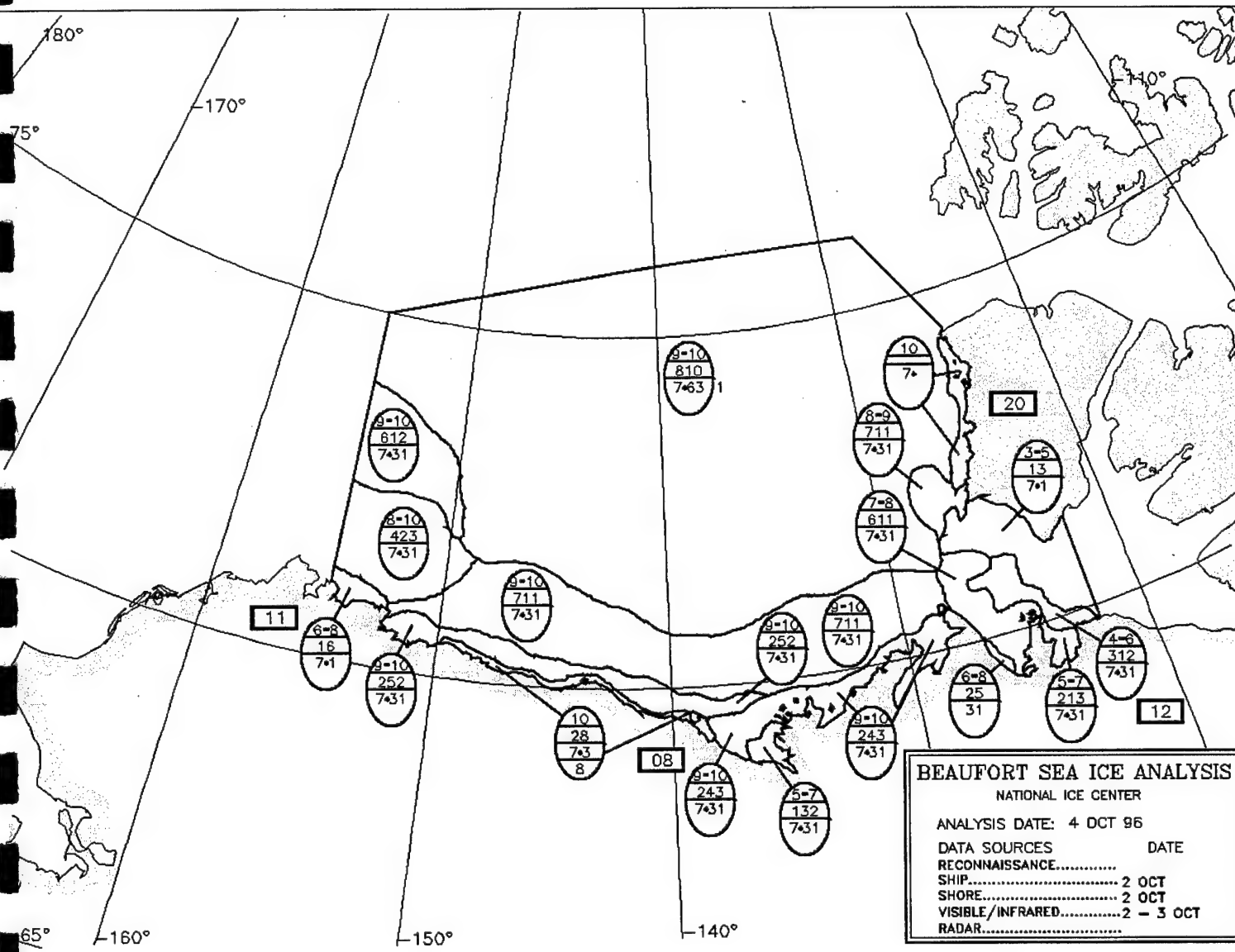


SIF=SEA ICE FREE

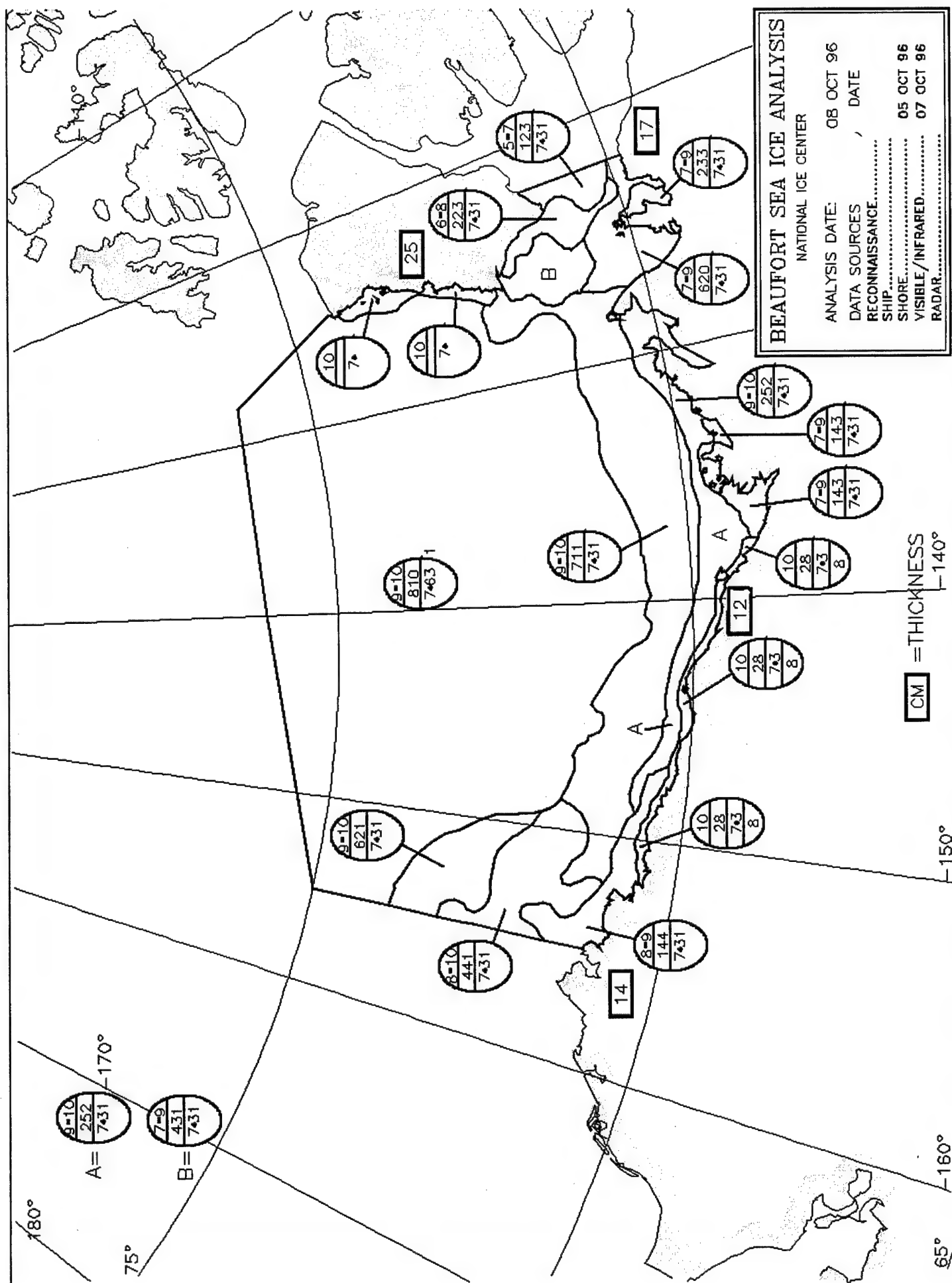


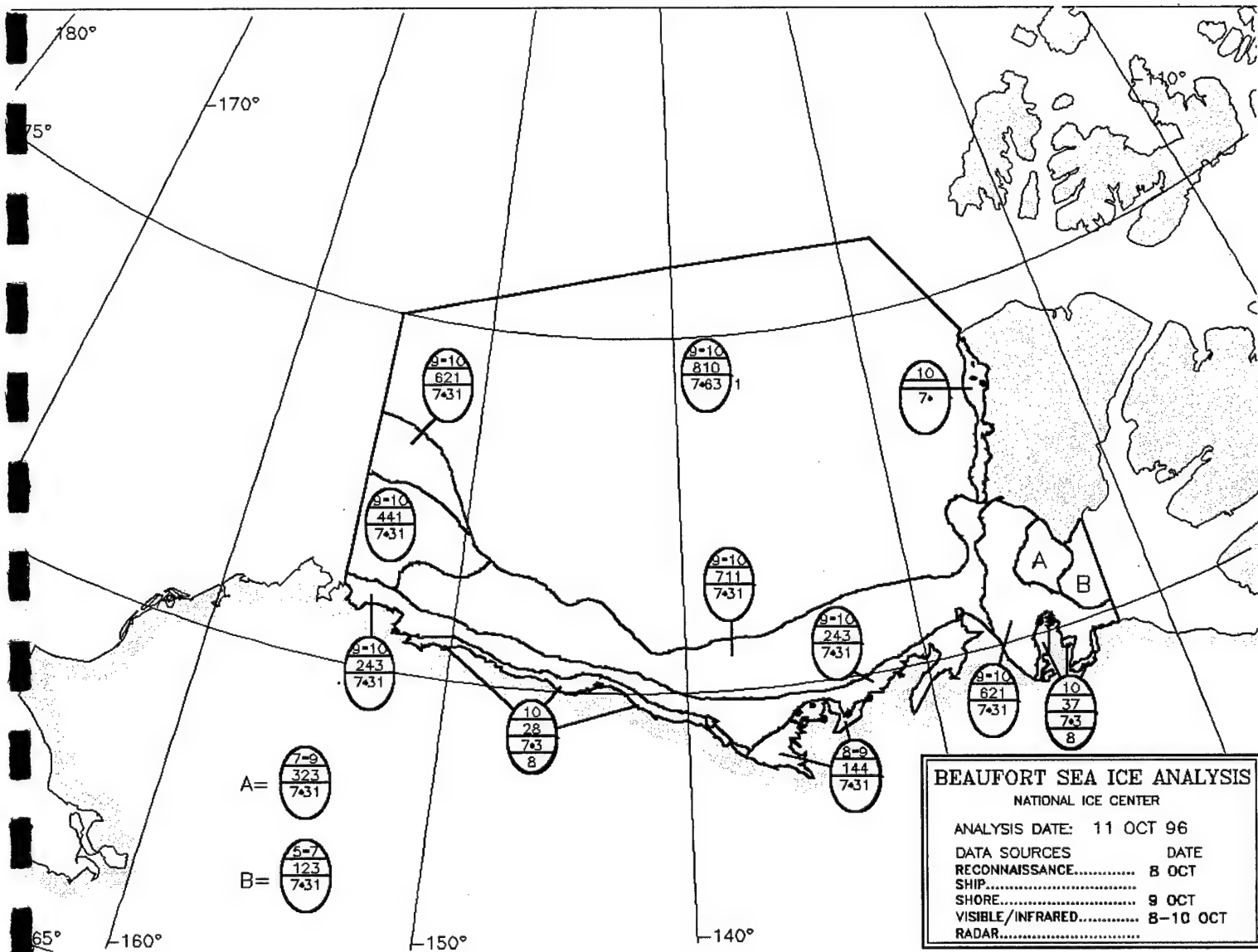
BEAUFORT SEA ICE ANALYSIS	
NATIONAL ICE CENTER	
ANALYSIS DATE: / 24 SEP 96	DATE
DATA SOURCES	22 SEP 96
RECONNAISSANCE.....	SHIP.....
SHORE.....	VISIBLE/INFRARED.....
RADAR.....	3-24 SEP 96





BEAUFORT SEA ICE ANALYSIS
 NATIONAL ICE CENTER
 ANALYSIS DATE: 4 OCT 96
 DATA SOURCES DATE
 RECONNAISSANCE.....
 SHIP..... 2 OCT
 SHORE..... 2 OCT
 VISIBLE/INFRARED..... 2 - 3 OCT
 RADAR.....

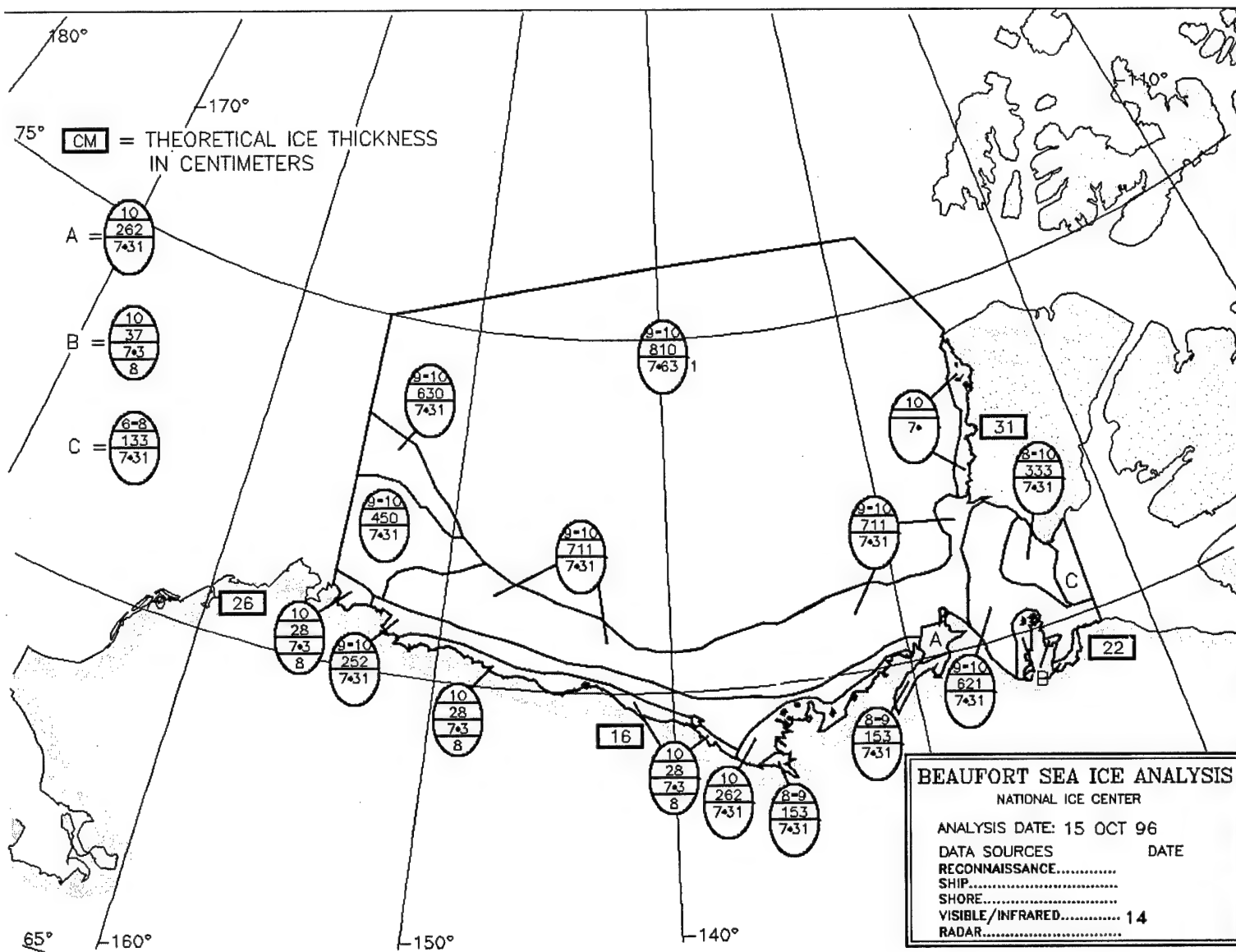


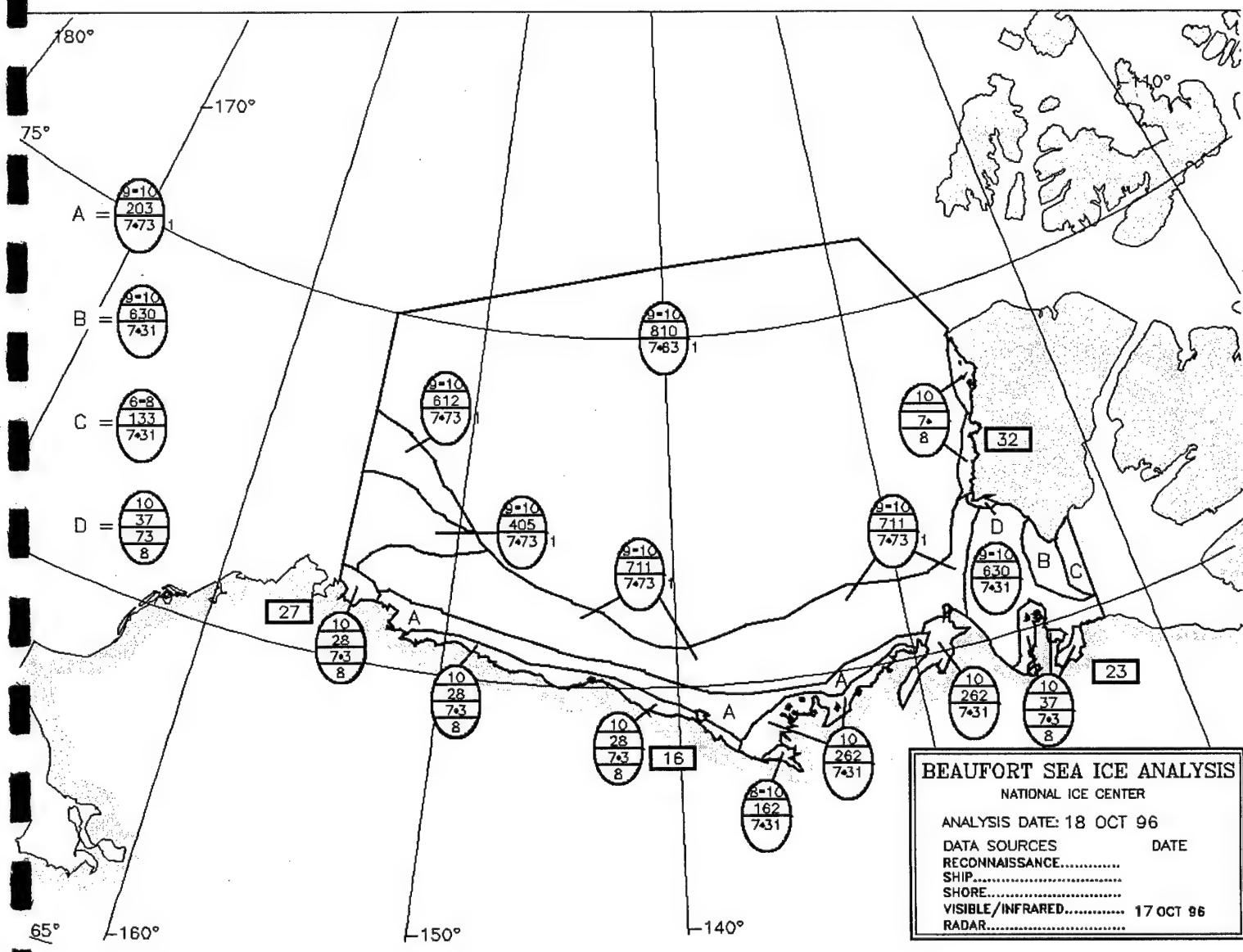


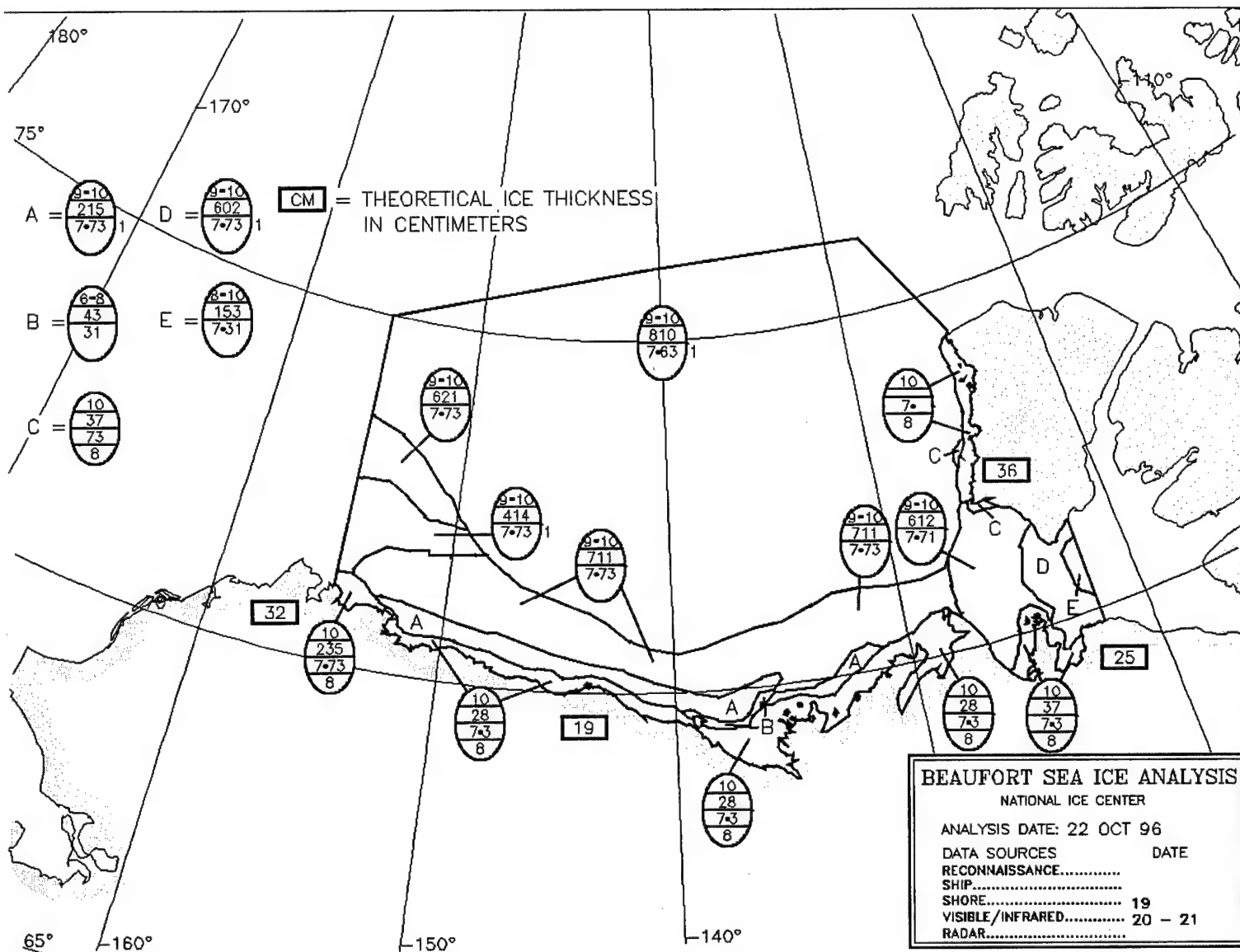
BEAUFORT SEA ICE ANALYSIS
NATIONAL ICE CENTER

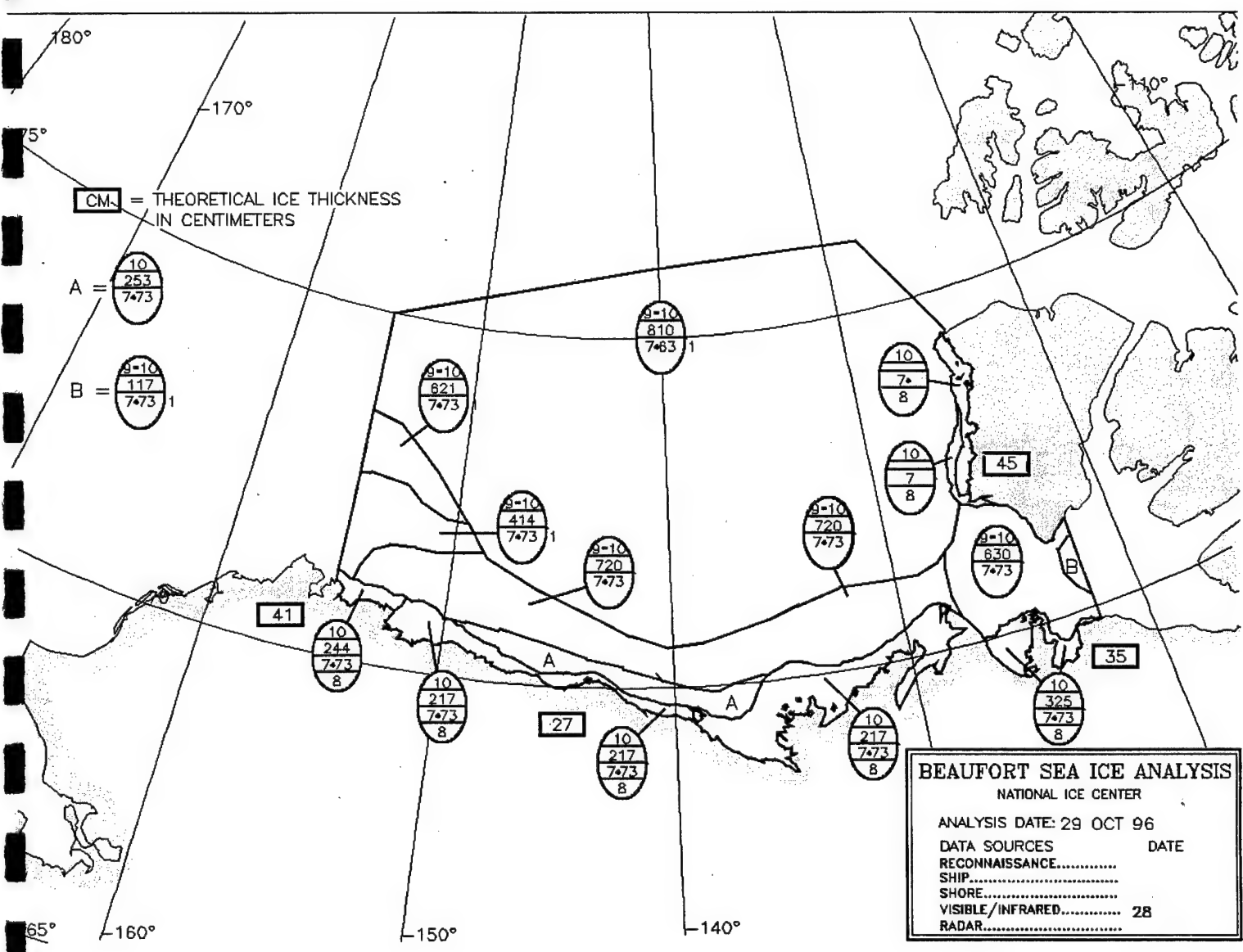
ANALYSIS DATE: 11 OCT 96

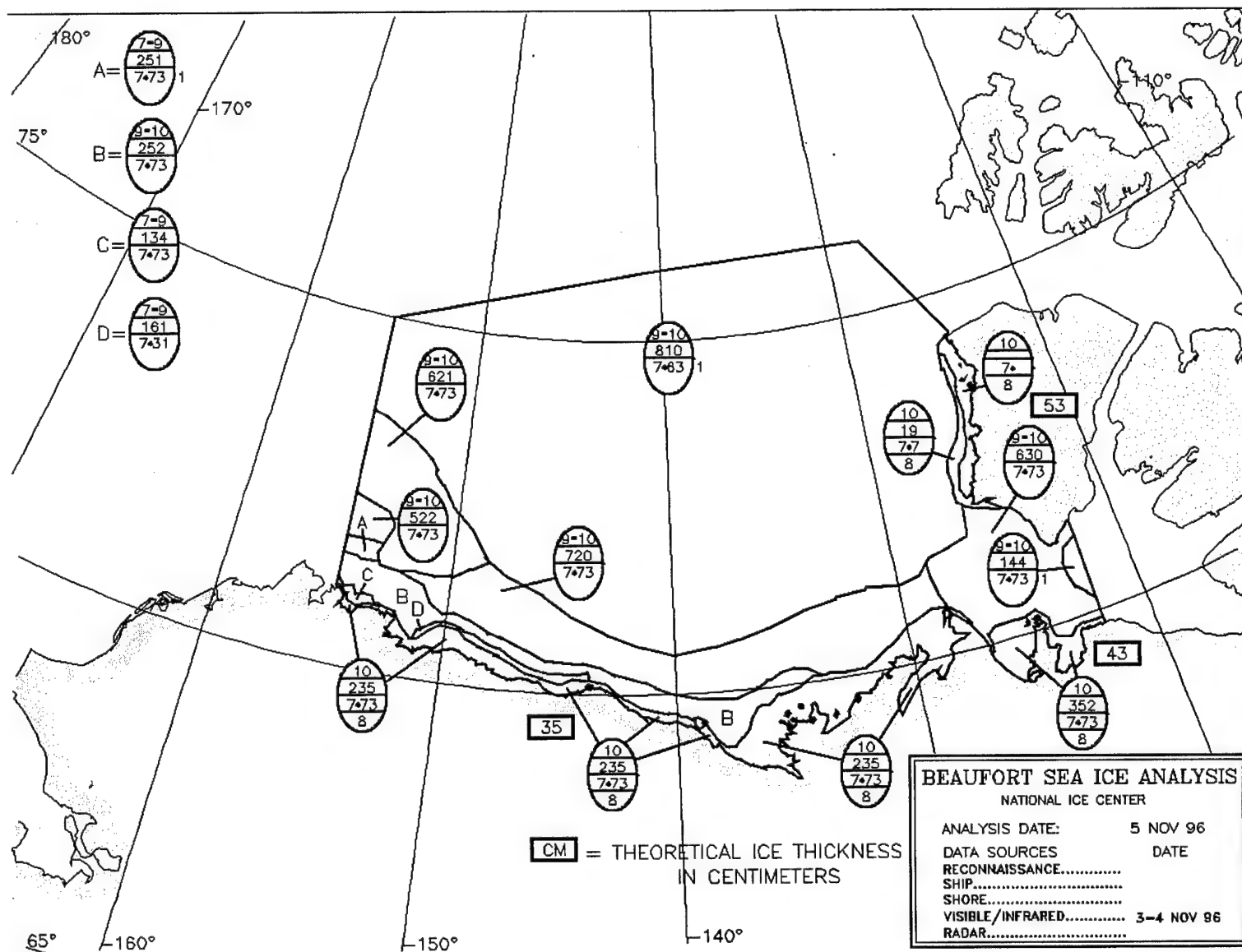
DATA SOURCES	DATE
RECONNAISSANCE.....	8 OCT
SHIP.....	
SHORE.....	9 OCT
VISIBLE/INFRARED.....	8-10 OCT
RADAR.....	

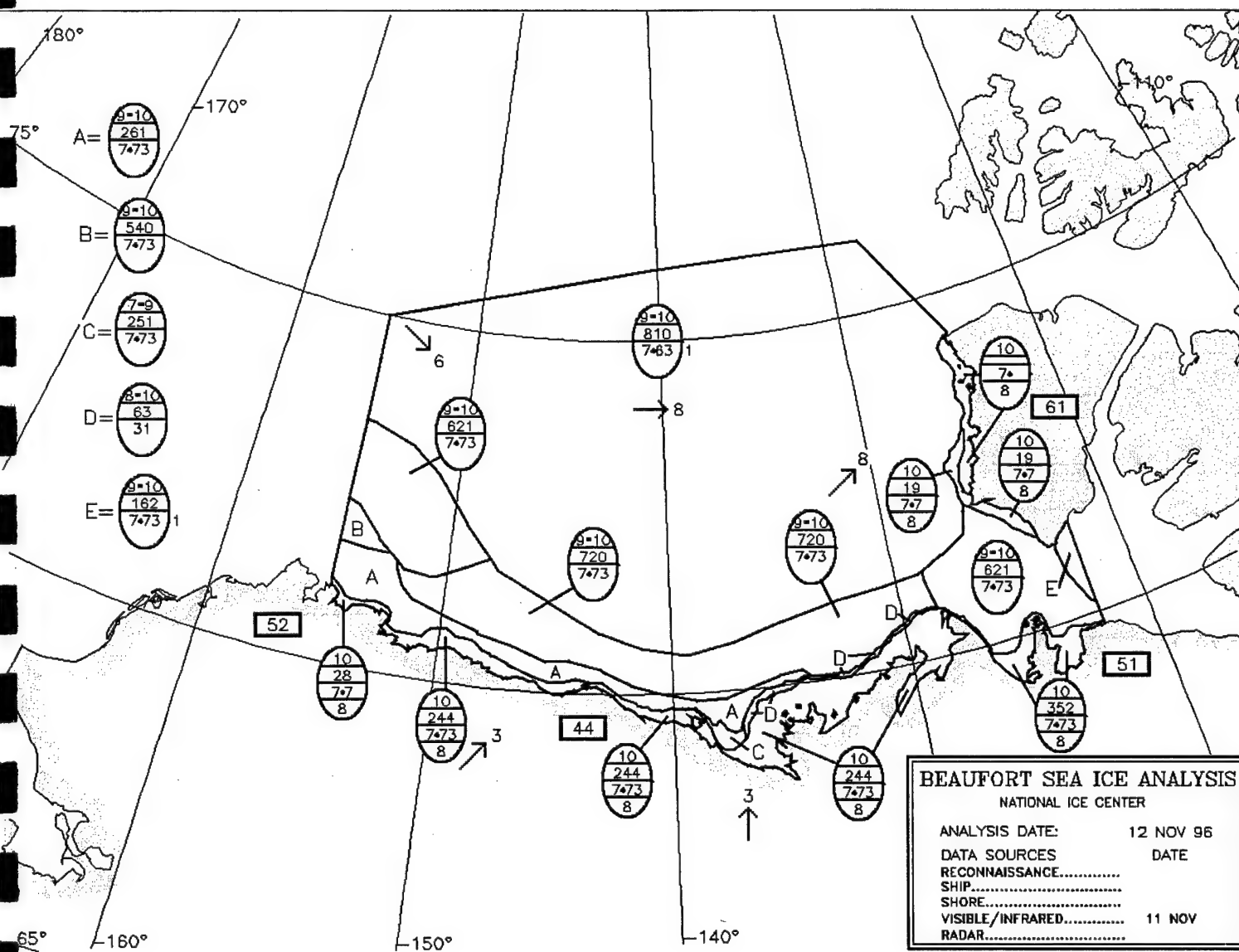


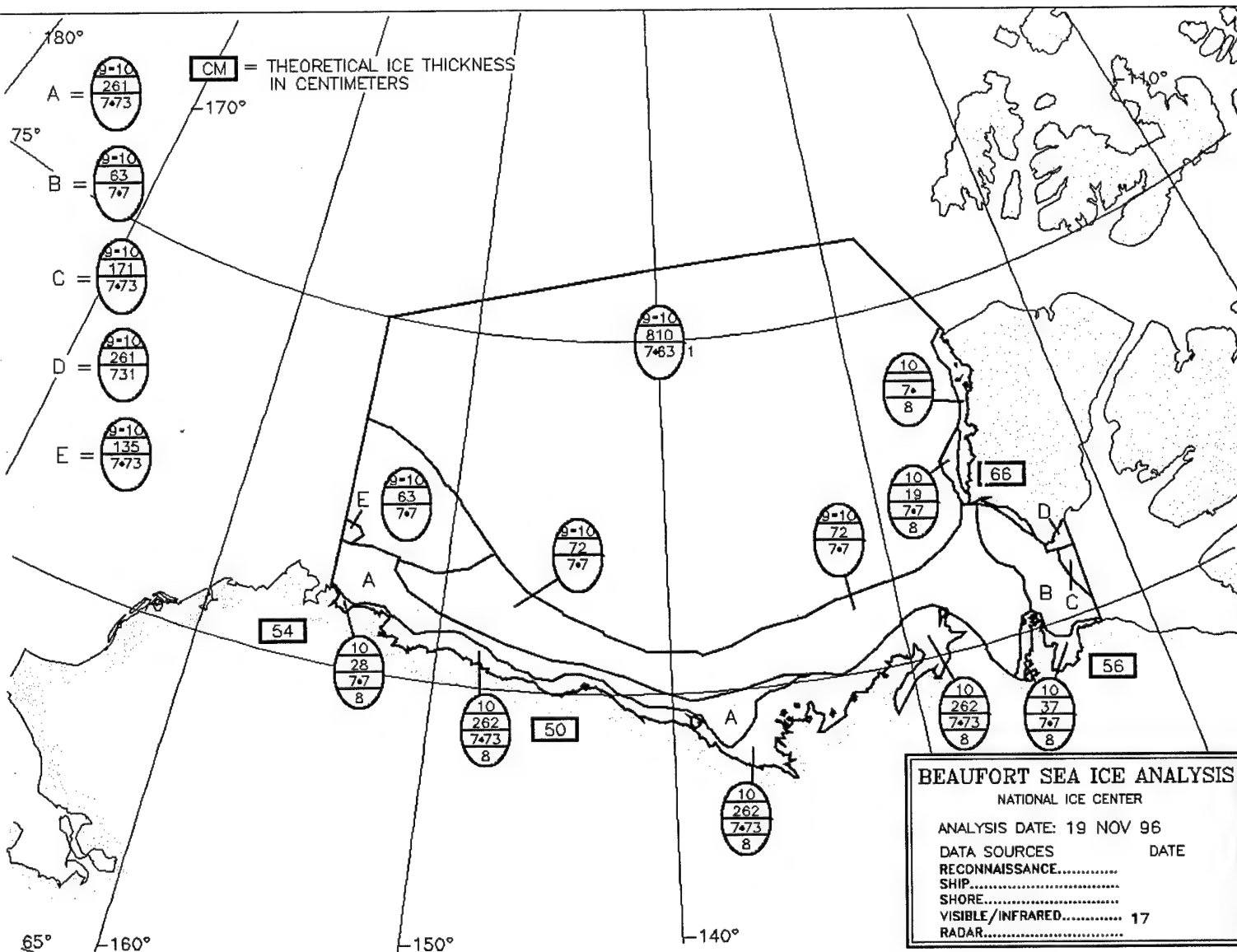


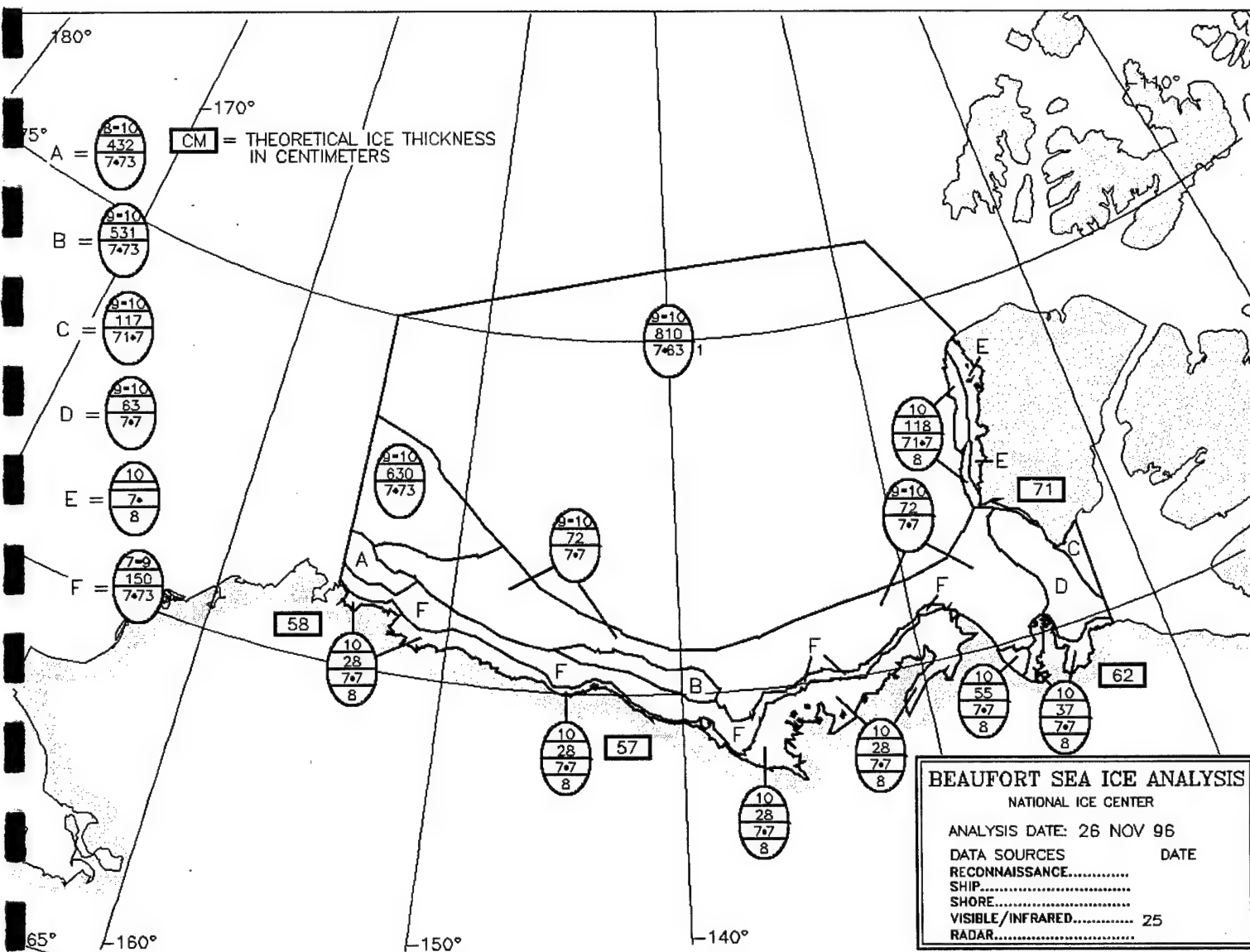




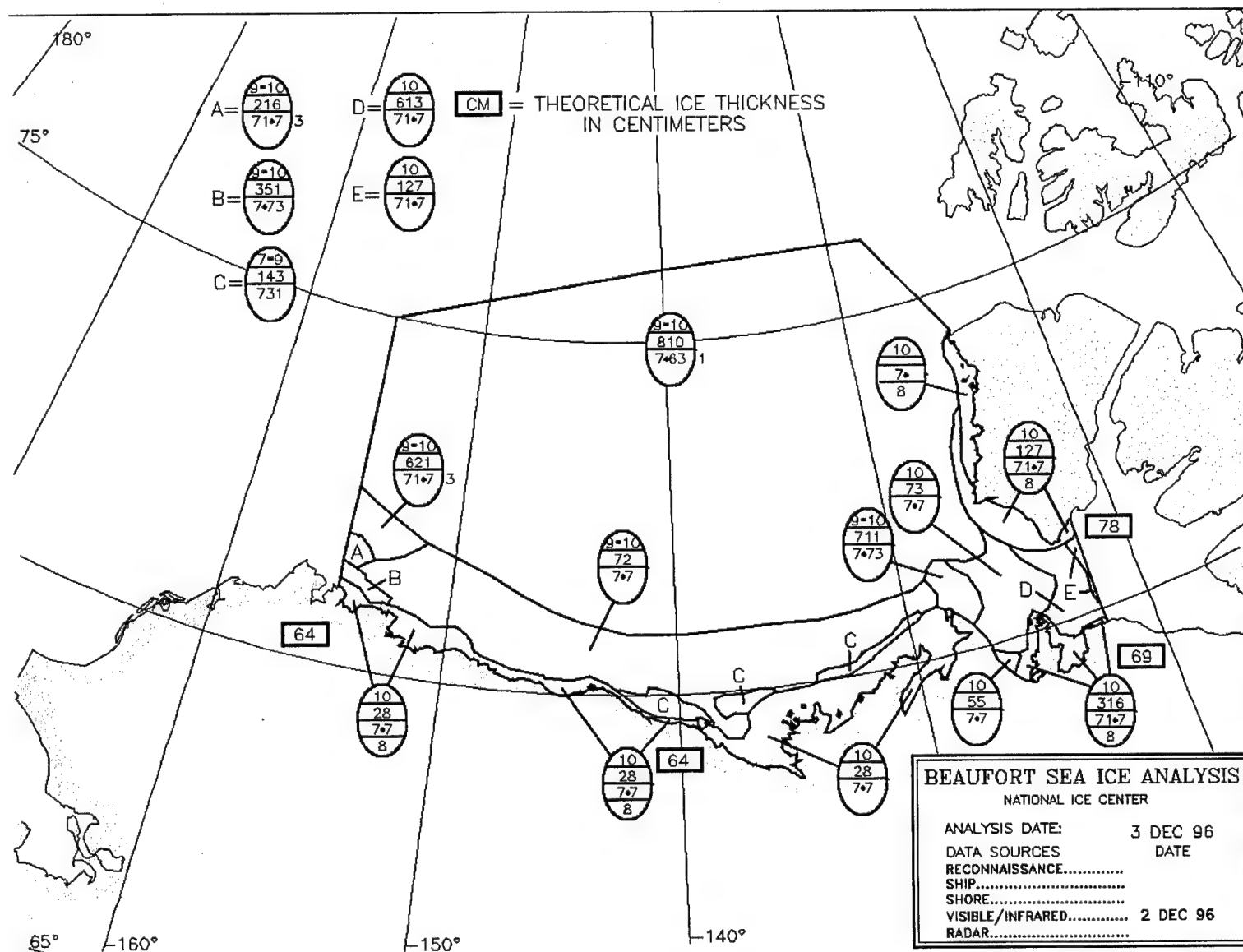






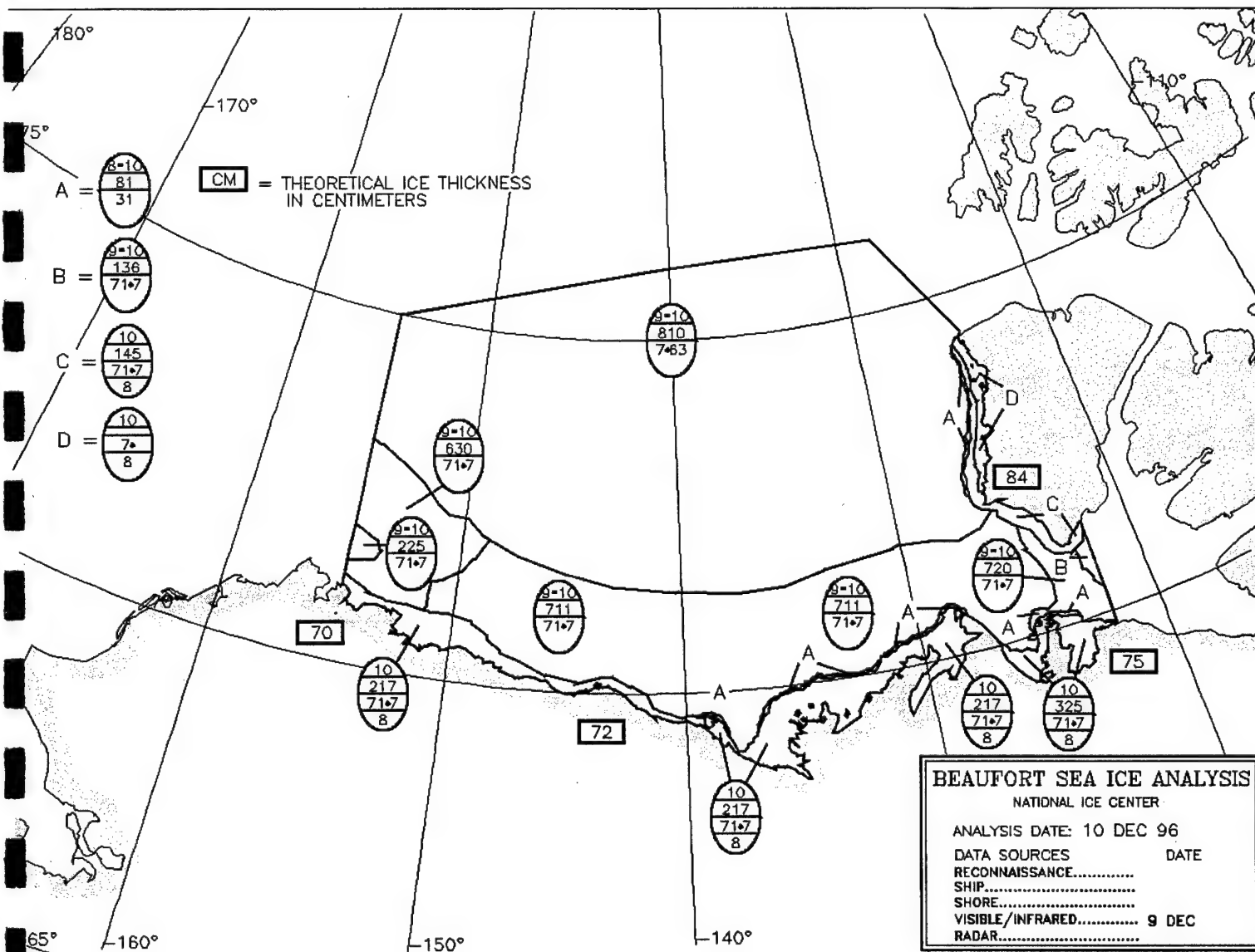


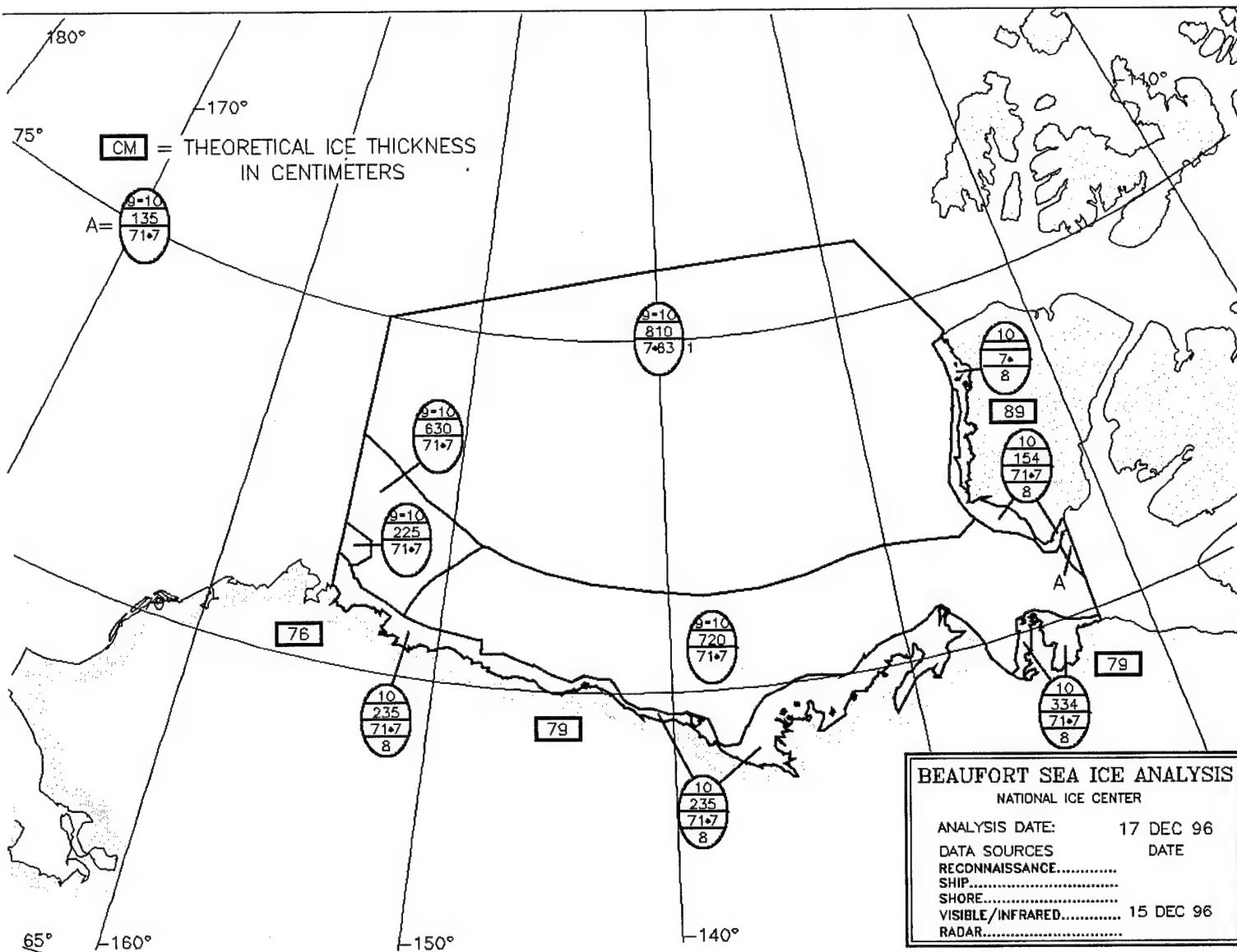
BEAUFORT SEA ICE ANALYSIS
 NATIONAL ICE CENTER
 ANALYSIS DATE: 26 NOV 96
 DATA SOURCES..... DATE
 RECONNAISSANCE.....
 SHIP.....
 SHORE.....
 VISIBLE/INFRARED..... 25
 RADAR.....

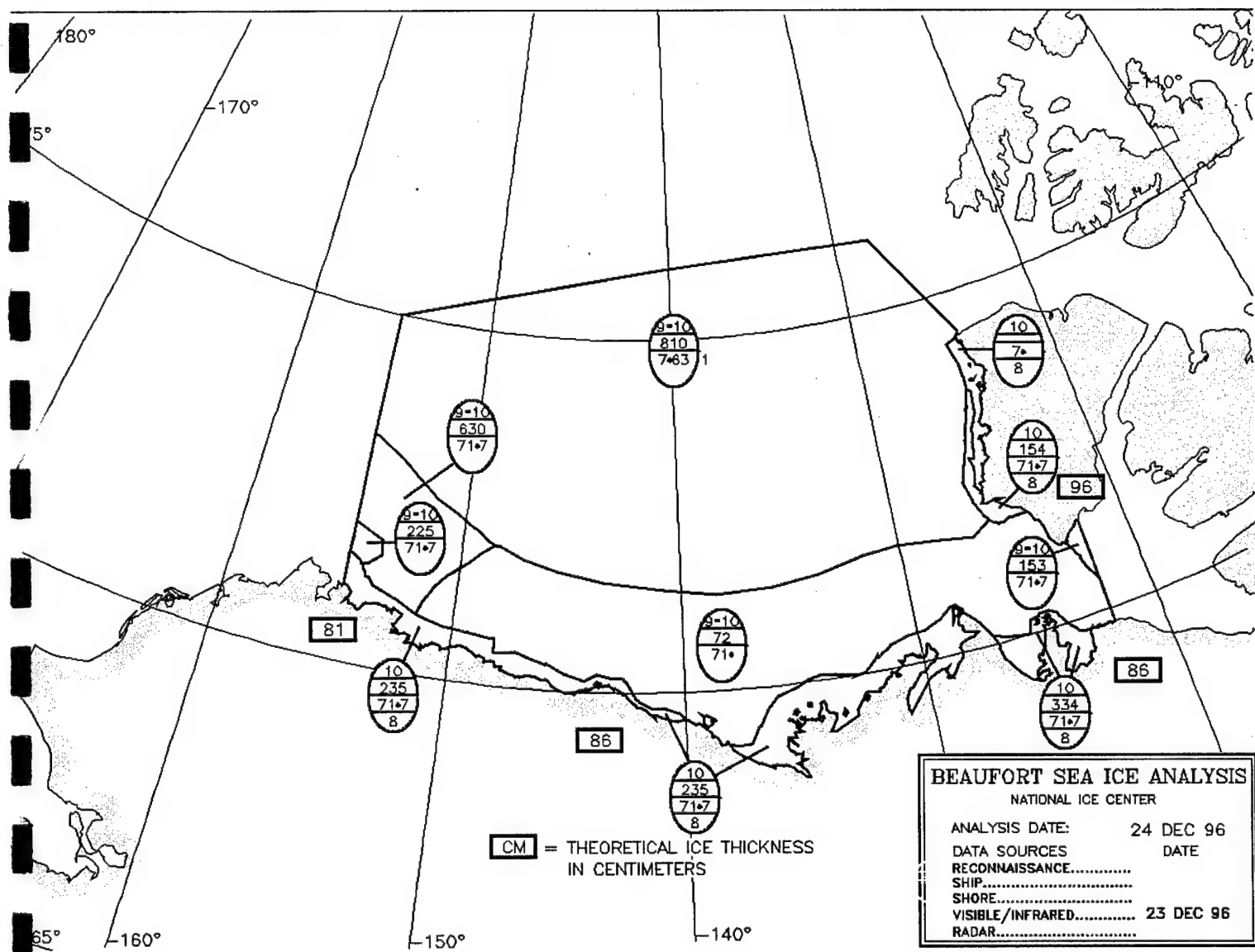


BEAUFORT SEA ICE ANALYSIS
 NATIONAL ICE CENTER

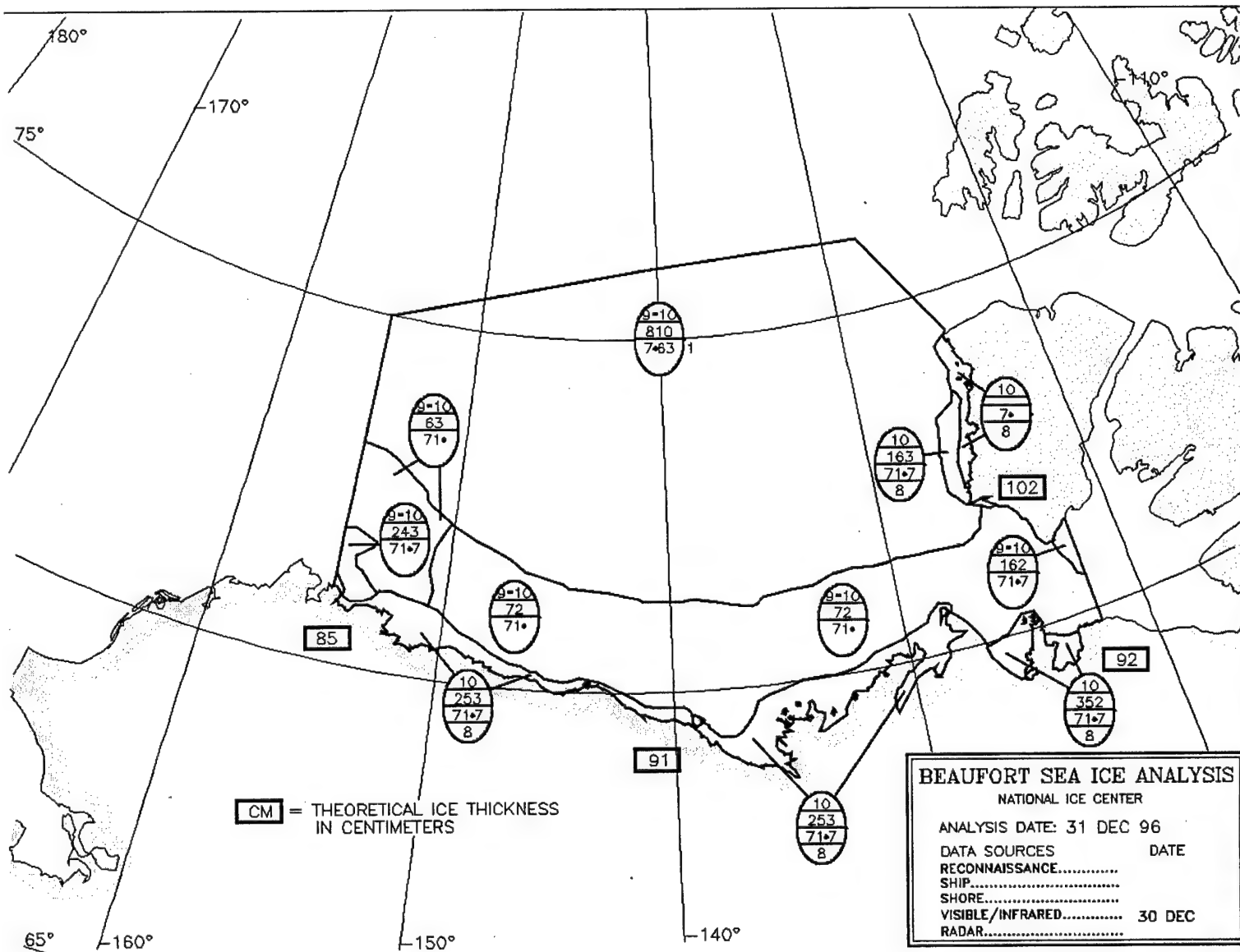
ANALYSIS DATE: 3 DEC 96
 DATA SOURCES DATE
 RECONNAISSANCE.....
 SHIP.....
 SHORE.....
 VISIBLE/INFRARED..... 2 DEC 96
 RADAR.....







BEAUFORT SEA ICE ANALYSIS	
NATIONAL ICE CENTER	
ANALYSIS DATE:	24 DEC 96
DATA SOURCES	DATE
RECONNAISSANCE.....	
SHIP.....	
SHORE.....	
VISIBLE/INFRARED.....	23 DEC 96
RADAR.....	



CANARCH WEST ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 27 AUG 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 25-26 AUG 96

RADAR.....

SIF = SEA ICE FREE

A = $\frac{0-1}{7\bullet}$

F = $\frac{10}{73}$
 $\frac{74\bullet}{8}$

J = $\frac{7-9}{71}$
 $\frac{74\bullet}{\sim 10}$

M = $\frac{7-9}{62}$
 $\frac{74\bullet}{74\bullet}$

O = $\frac{9-10}{18}$
 $\frac{74\bullet}{74\bullet}$

B = $\frac{1-3}{7\bullet}$

G = $\frac{10}{82}$
 $\frac{74\bullet}{8}$

K = $\frac{6-8}{25}$
 $\frac{74\bullet}{74\bullet}$

N = $\frac{9-10}{27}$
 $\frac{74\bullet}{74\bullet}$

C = $\frac{2-4}{7\bullet}$

H = $\frac{9-10}{72}$
 $\frac{74\bullet}{74\bullet}$

D = $\frac{3-5}{7\bullet}$

$\frac{9-10}{45}$
 $\frac{74\bullet}{74\bullet}$

$\frac{9-10}{810}$
 $\frac{74\bullet}{74\bullet}$

E = $\frac{6-8}{7\bullet}$

$\frac{9-10}{81}$
 $\frac{74\bullet}{74\bullet}$

$\frac{9-10}{72}$
 $\frac{74\bullet}{74\bullet}$

$\frac{5-7}{33}$
 $\frac{74\bullet}{74\bullet}$

$\frac{3-5}{13}$
 $\frac{74\bullet}{74\bullet}$

$\frac{6-8}{25}$
 $\frac{74\bullet}{74\bullet}$

$\frac{8-10}{27}$
 $\frac{74\bullet}{74\bullet}$

$\frac{0-1}{4\bullet}$

$\frac{2-4}{7\bullet}$
 $\frac{\sim 10}{\sim 10}$

$\frac{6-8}{25}$
 $\frac{74\bullet}{74\bullet}$

-120

-130

-110

-100

-80

85

70

SIF

SIF

SIF

CANARCH WEST ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 03 SEP 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 03 SEP 96

RADAR.....

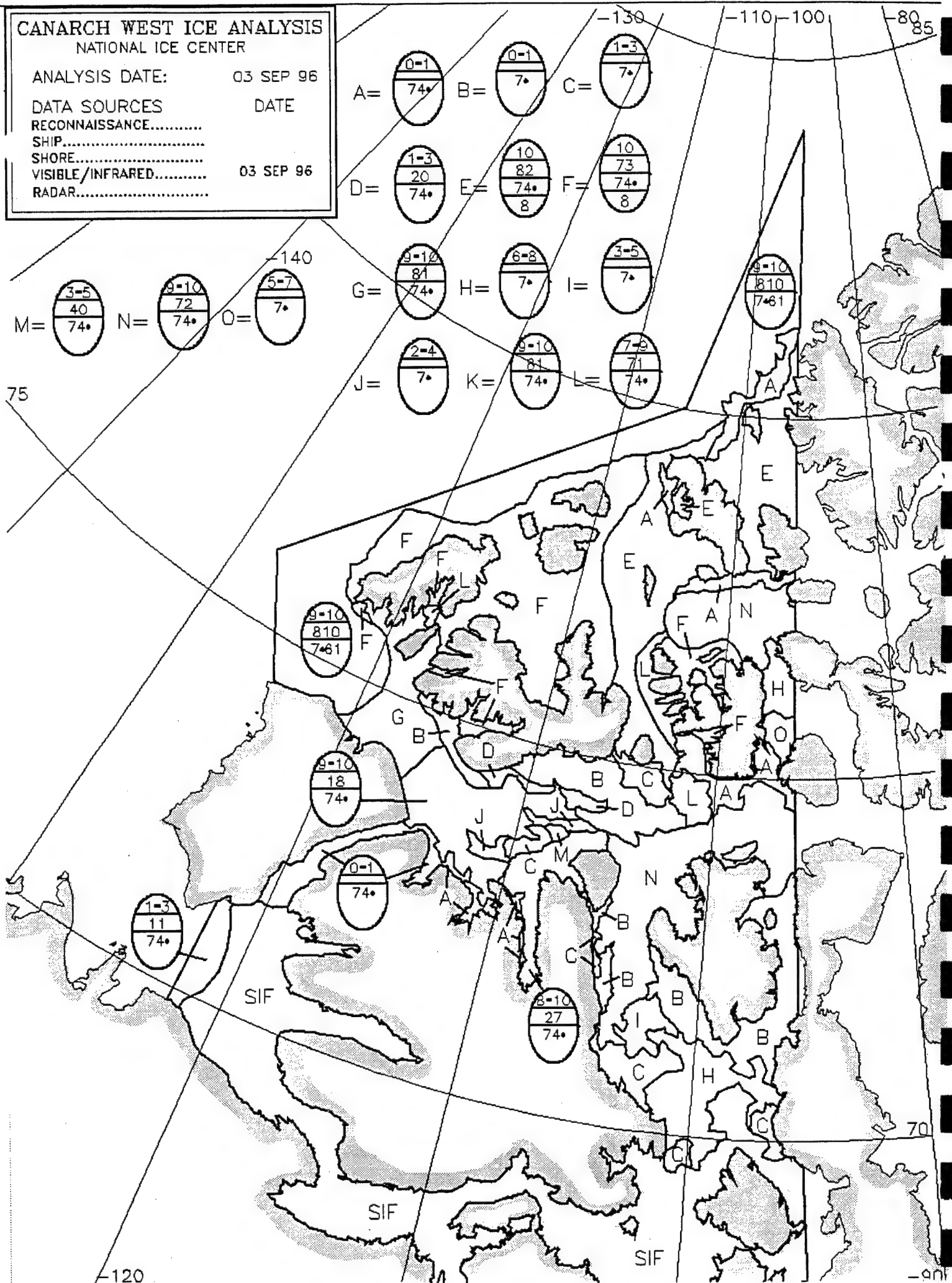
A = $\frac{0-1}{74\bullet}$ B = $\frac{0-1}{7\bullet}$ C = $\frac{1-3}{7\bullet}$

D = $\frac{1-3}{20}$ E = $\frac{10}{82}$ F = $\frac{10}{73}$

G = $\frac{9-10}{81}$ H = $\frac{6-8}{7\bullet}$ I = $\frac{3-5}{7\bullet}$

J = $\frac{2-4}{7\bullet}$ K = $\frac{9-10}{81}$ L = $\frac{7-9}{71}$

M = $\frac{3-5}{40}$ N = $\frac{9-10}{72}$ O = $\frac{5-7}{7\bullet}$



CANARCH WEST ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 24 SEP 96

DATA SOURCES DATE

ECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 24 SEP 96

RADAR.....

SIF=SEA ICE FREE

A= $\frac{0-1}{74\bullet}$

G= $\frac{1-3}{7\bullet}$

L= $\frac{5-7}{7\bullet}$

Q= $\frac{7-9}{71 \over 74\bullet}$

P= $\frac{9-10}{18 \over 74\bullet}$

B= $\frac{10}{82 \over 74\bullet \over 8}$

H= $\frac{2-4}{7\bullet}$

M= $\frac{3-5}{7\bullet}$

R= $\frac{8-10}{72 \over 74\bullet}$

C= $\frac{9-10}{810 \over 74\bullet 1}$

I= $\frac{9-10}{72 \over 74\bullet}$

N= $\frac{0-1}{7\bullet}$

D= $\frac{9-10}{720 \over 74\bullet 1}$

J= $\frac{9-10}{7\bullet}$

E= $\frac{3-5}{40 \over 7\bullet 1}$

K= $\frac{7-9}{7\bullet}$

F= $\frac{10}{73 \over 74\bullet \over 8}$

K= $\frac{7-9}{7\bullet}$

$\frac{9-10}{81 \over 74\bullet}$

$\frac{0-1}{74\bullet}$

$\frac{0-1}{74\bullet}$

$\frac{0-1}{7\bullet}$

$\frac{1-3}{11 \over 74\bullet}$

$\frac{6-8}{18 \over 74\bullet}$

$\frac{9-10}{72 \over 74\bullet}$

$\frac{1-3}{11 \over 74\bullet \over \sim 10}$

$\frac{0-1}{7\bullet}$

$\frac{0-1}{7\bullet}$

-120

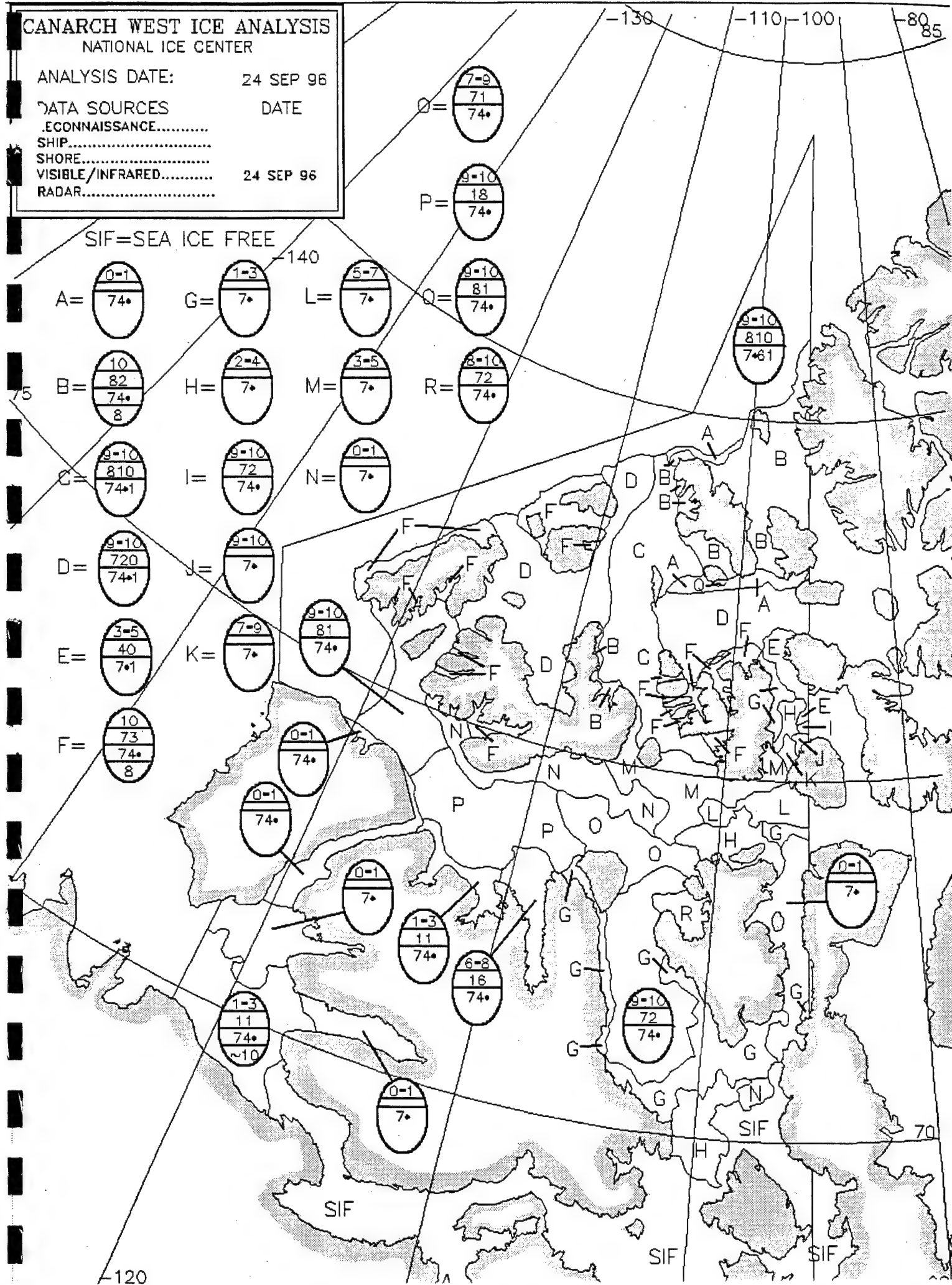
-130

-110

-100

-80
85

70



CANARCH WEST ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 01 OCT 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

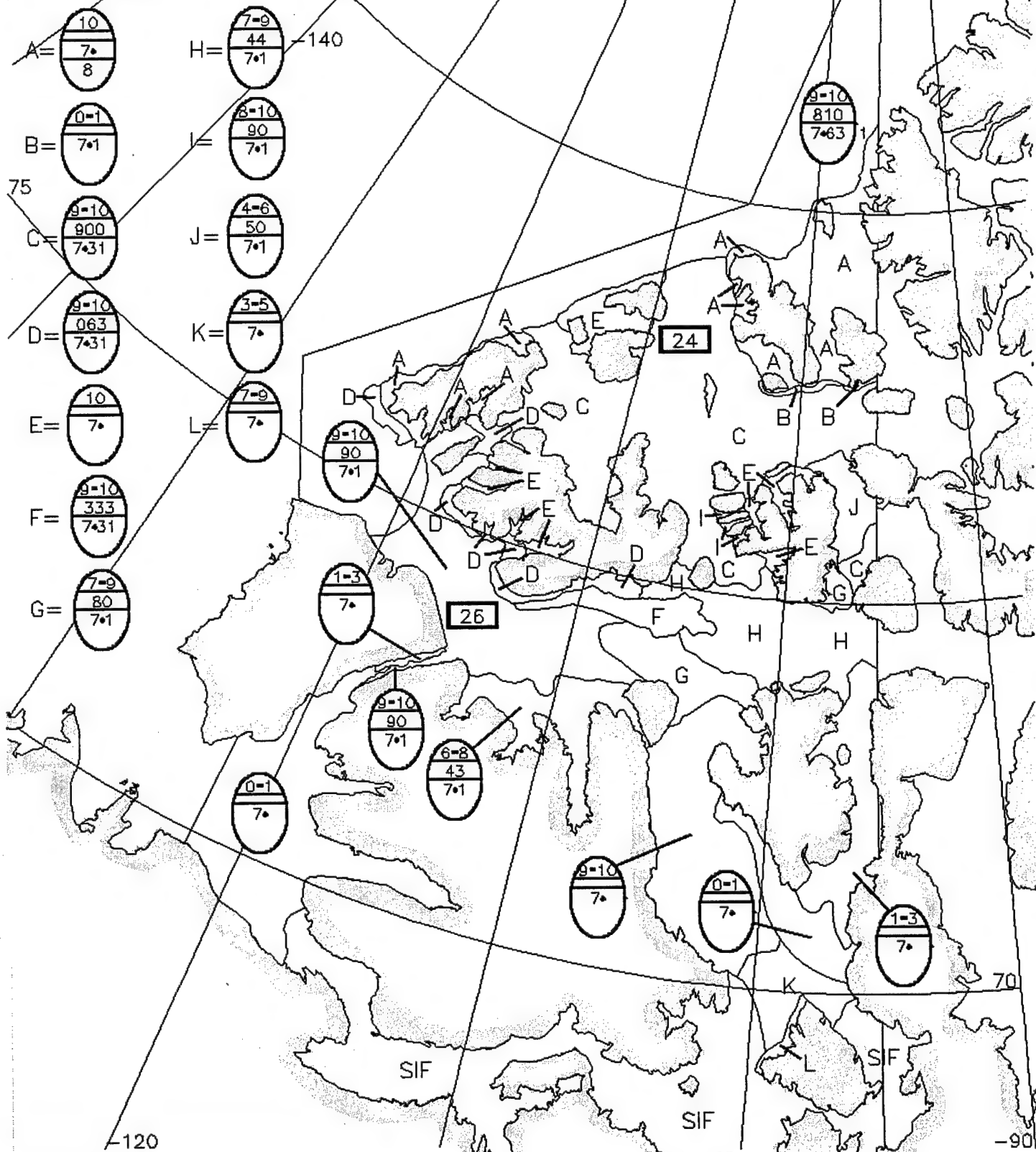
SHORE.....

VISIBLE/INFRARED..... 30 SEP 96

RADAR.....

CM = THICKNESS

SIF = SEA ICE FREE



CANARCH WEST ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 08 OCT 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

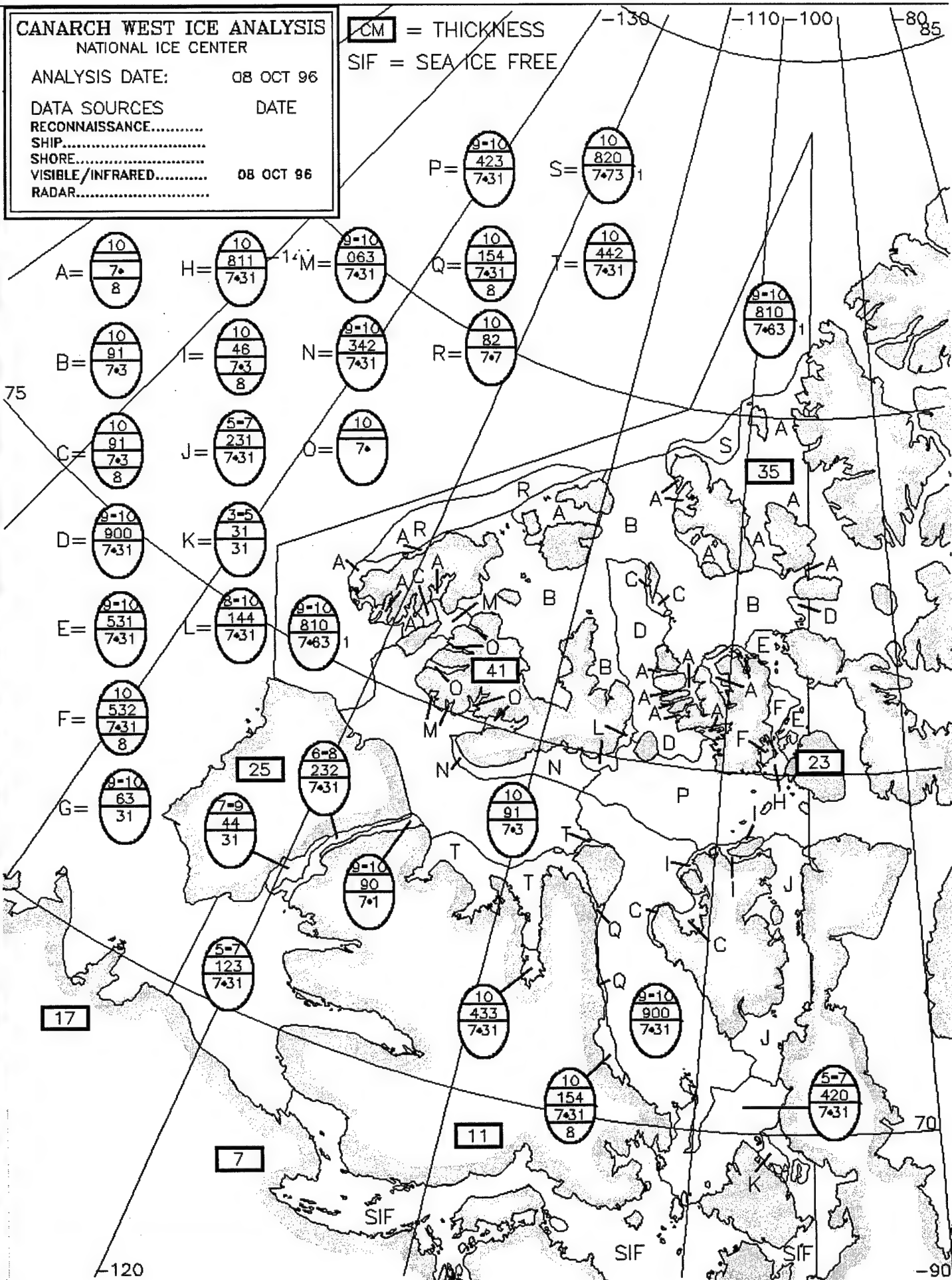
SHORE.....

VISIBLE/INFRARED..... 08 OCT 96

RADAR.....

CM = THICKNESS

SIF = SEA ICE FREE



CANARCH WEST ICE ANALYSIS NATIONAL ICE CENTER

ANALYSIS DATE: 15 OCT 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 15 OCT 96

RADAR.....

O = $\frac{9-10}{36}$
T = $\frac{5-7}{132}$
X = $\frac{10}{28}$
Z = $\frac{10}{262}$

P = $\frac{10}{28}$
U = $\frac{9-10}{72}$
Y = $\frac{10}{91}$
A2 = $\frac{10}{442}$

Q = $\frac{9-10}{63}$
V = $\frac{9-10}{432}$
W = $\frac{10}{46}$

R = $\frac{9-10}{261}$
S = $\frac{9-10}{621}$

M = $\frac{10}{91}$
N = $\frac{10}{82}$

D = $\frac{9-10}{90}$
J = $\frac{9-10}{144}$

E = $\frac{10}{55}$
K = $\frac{9-10}{342}$

F = $\frac{9-10}{531}$

L = $\frac{9-10}{063}$
G = $\frac{10}{3}$
H = $\frac{10}{811}$
I = $\frac{9-10}{423}$

A = $\frac{10}{7}$
B = $\frac{9-10}{900}$
C = $\frac{10}{91}$
D = $\frac{9-10}{90}$
E = $\frac{10}{55}$
F = $\frac{9-10}{531}$

G = $\frac{10}{7}$
H = $\frac{10}{811}$
I = $\frac{9-10}{423}$
J = $\frac{9-10}{144}$
K = $\frac{9-10}{342}$
L = $\frac{9-10}{063}$
M = $\frac{10}{91}$
N = $\frac{10}{82}$
O = $\frac{9-10}{36}$
P = $\frac{10}{28}$
Q = $\frac{9-10}{63}$
R = $\frac{9-10}{261}$
S = $\frac{9-10}{621}$
T = $\frac{5-7}{132}$
U = $\frac{9-10}{72}$
V = $\frac{9-10}{432}$
W = $\frac{10}{46}$
X = $\frac{10}{28}$
Y = $\frac{10}{91}$
Z = $\frac{10}{262}$
A2 = $\frac{10}{442}$

75

31

22

11



CM = THICKNESS
120

CANARCH WEST ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 22 OCT 96

DATA SOURCES

DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

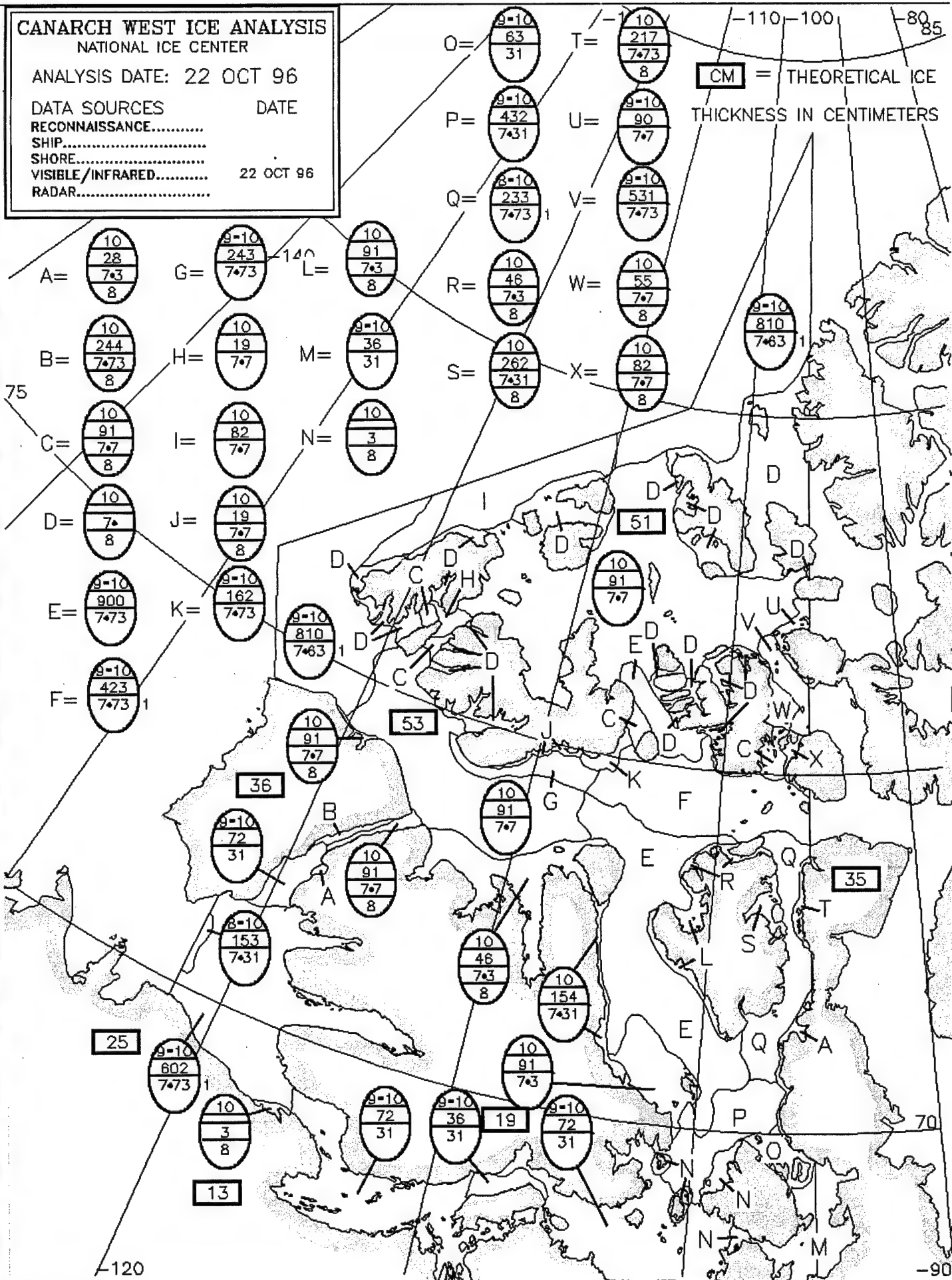
VISIBLE/INFRARED.....

22 OCT 96

RADAR.....

CM = THEORETICAL ICE
THICKNESS IN CENTIMETERS

75



CANARCH WEST ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 29 OCT 96

DATA SOURCES DATE

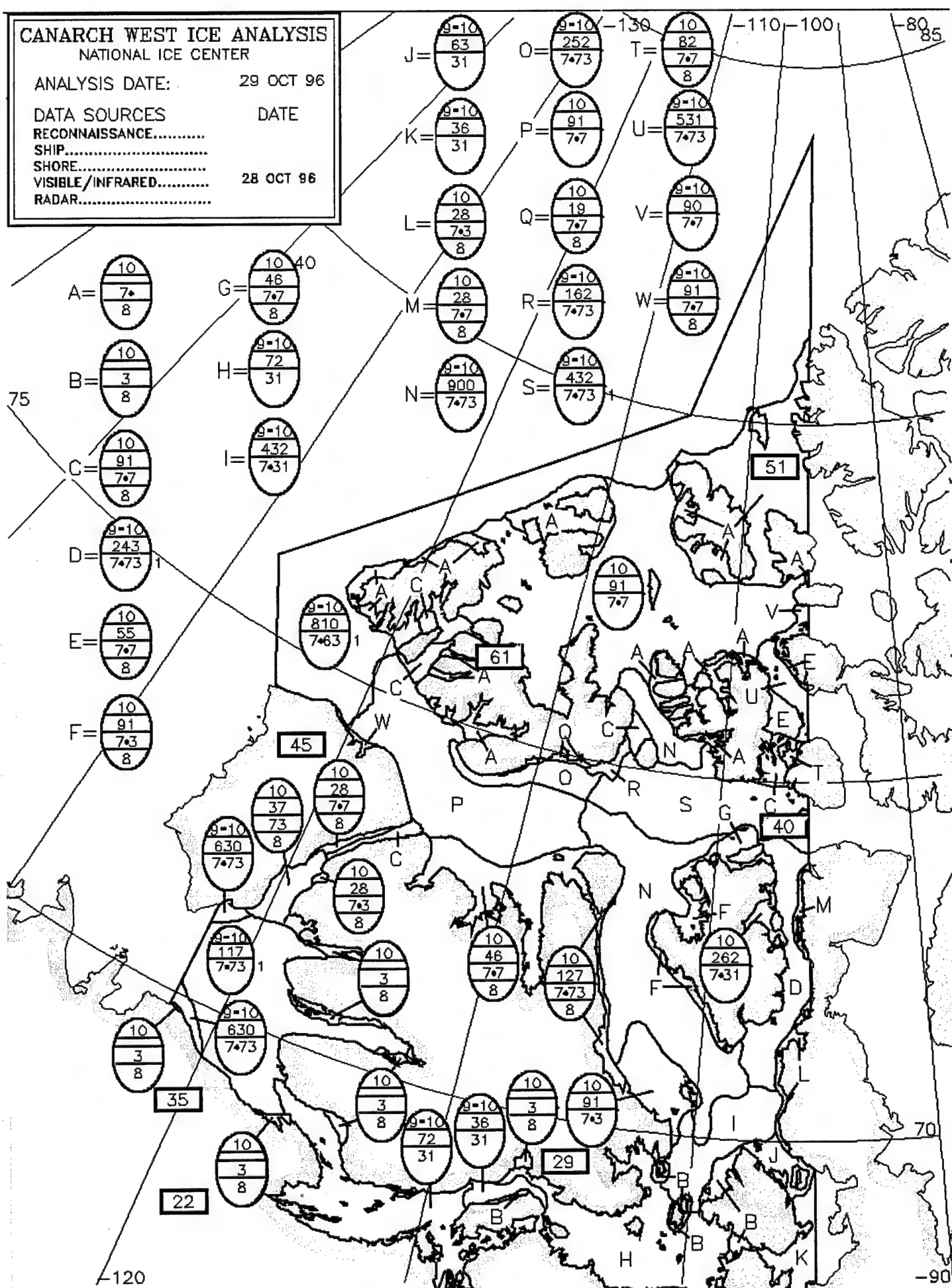
RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 28 OCT 96

RADAR.....



CANARCH WEST ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 05 NOV 96

DATA SOURCES RECONNAISSANCE..... DATE

SHIP.....

SHORE.....

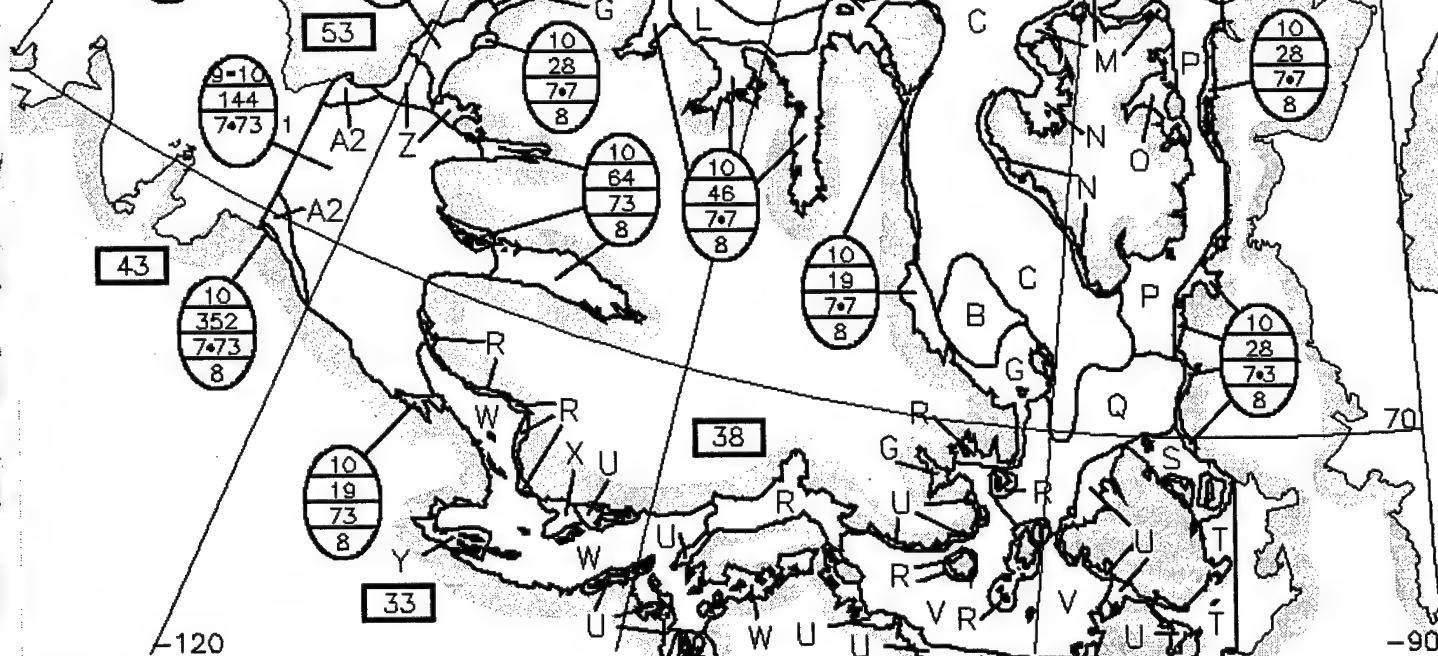
VISIBLE/INFRARED..... 04 NOV 96

RADAR.....

P = $\frac{9-10}{243}$ U = $\frac{10}{3}$ Y = $\frac{10}{19}$ CM = THEORETICAL
 $\frac{7-73}{7-73}$ $\frac{8}{8}$ $\frac{73}{73}$ ICE THICKNESS
 Q = $\frac{9-10}{450}$ V = $\frac{9-10}{27}$ Z = $\frac{10}{631}$ IN CENTIMETERS
 $\frac{7-73}{7-73}$ $\frac{73}{73}$ $\frac{731}{731}$
 R = $\frac{10}{37}$ W = $\frac{9-10}{261}$ A2 = $\frac{9-10}{630}$
 $\frac{73}{73}$ $\frac{731}{731}$ $\frac{7-73}{7-73}$
 S = $\frac{9-10}{63}$ X = $\frac{9-10}{36}$ $\frac{810}{7-63}$
 $\frac{31}{31}$ $\frac{31}{31}$
 T = $\frac{9-10}{162}$ $\frac{731}{731}$

A = $\frac{10}{7}$ H = $\frac{9-10}{441}$ M = $\frac{10}{46}$
 $\frac{7-7}{8}$ $\frac{7-73}{7-73}$ $\frac{7-7}{8}$
 B = $\frac{10}{91}$ I = $\frac{10}{118}$ N = $\frac{10}{91}$
 $\frac{7-7}{7-7}$ $\frac{7-7}{71-7}$ $\frac{7-73}{7-73}$
 C = $\frac{9-10}{90}$ J = $\frac{10}{91}$ O = $\frac{10}{28}$
 $\frac{7-7}{7-7}$ $\frac{7-7}{71-7}$ $\frac{7-7}{7-7}$
 D = $\frac{10}{55}$ K = $\frac{9-10}{216}$
 $\frac{7-7}{7-7}$ $\frac{7-7}{71-7}$
 E = $\frac{9-10}{54}$ L = $\frac{10}{46}$
 $\frac{7-7}{7-7}$ $\frac{7-7}{7-7}$

F = $\frac{10}{82}$
 $\frac{7-7}{7-7}$
 G = $\frac{10}{91}$
 $\frac{7-7}{7-7}$



CANARCH WEST ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 12 NOV 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 11 NOV 96

RADAR.....

P = $\frac{9-10}{261 \over 7 \cdot 73}$

U = $\frac{10}{28 \over 73 \over 8}$

CM = THEORETICAL ICE THICKNESS
IN CENTIMETERS

Q = $\frac{10}{3 \over 8}$

V = $\frac{9-10}{45 \over 73}$

R = $\frac{9-10}{450 \over 7 \cdot 73}$

W = $\frac{10}{415 \over 71 \cdot 7}$

Z = $\frac{9-10}{27 \over 73}$

S = $\frac{9-10}{261 \over 731}$

X = $\frac{10}{28 \over 73}$

T = $\frac{10}{37 \over 73 \over 8}$

Y = $\frac{9-10}{63 \over 73}$

A = $\frac{10}{7 \cdot 8}$

H = $\frac{9-10}{90 \over 7 \cdot 7}$

M = $\frac{10}{46 \over 7 \cdot 7}$

B = $\frac{10}{91 \over 71 \cdot 8}$

I = $\frac{9-10}{441 \over 7 \cdot 73}$

N = $\frac{10}{28 \over 7 \cdot 7 \over 8}$

C = $\frac{10}{55 \over 7 \cdot 7 \over 8}$

J = $\frac{10}{82 \over 7 \cdot 7 \over 8}$

O = $\frac{10}{91 \over 7 \cdot 3 \over 8}$

D = $\frac{9-10}{162 \over 7 \cdot 73}$

K = $\frac{10}{91 \over 7 \cdot 7}$

E = $\frac{10}{91 \over 7 \cdot 7 \over 8}$

L = $\frac{10}{46 \over 7 \cdot 7 \over 8}$

F = $\frac{9-10}{216 \over 71 \cdot 7}$

G = $\frac{10}{118 \over 71 \cdot 7 \over 8}$

43

$\frac{10}{352 \over 7 \cdot 73 \over 8}$

$\frac{10}{64 \over 73 \over 8}$

62

$\frac{10}{7 \over 8}$

$\frac{10}{73 \over 73 \over 8}$

$\frac{10}{46 \over 7 \cdot 7 \over 8}$

$\frac{10}{64 \over 73 \over 8}$

47

$\frac{10}{19 \over 7 \cdot 7 \over 8}$

$\frac{10}{28 \over 7 \cdot 3 \over 8}$

63

75

55

75

-120

-130

-110

-100

-80

85

-90

70

CANARCH WEST ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 19 NOV 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 18 NOV 96

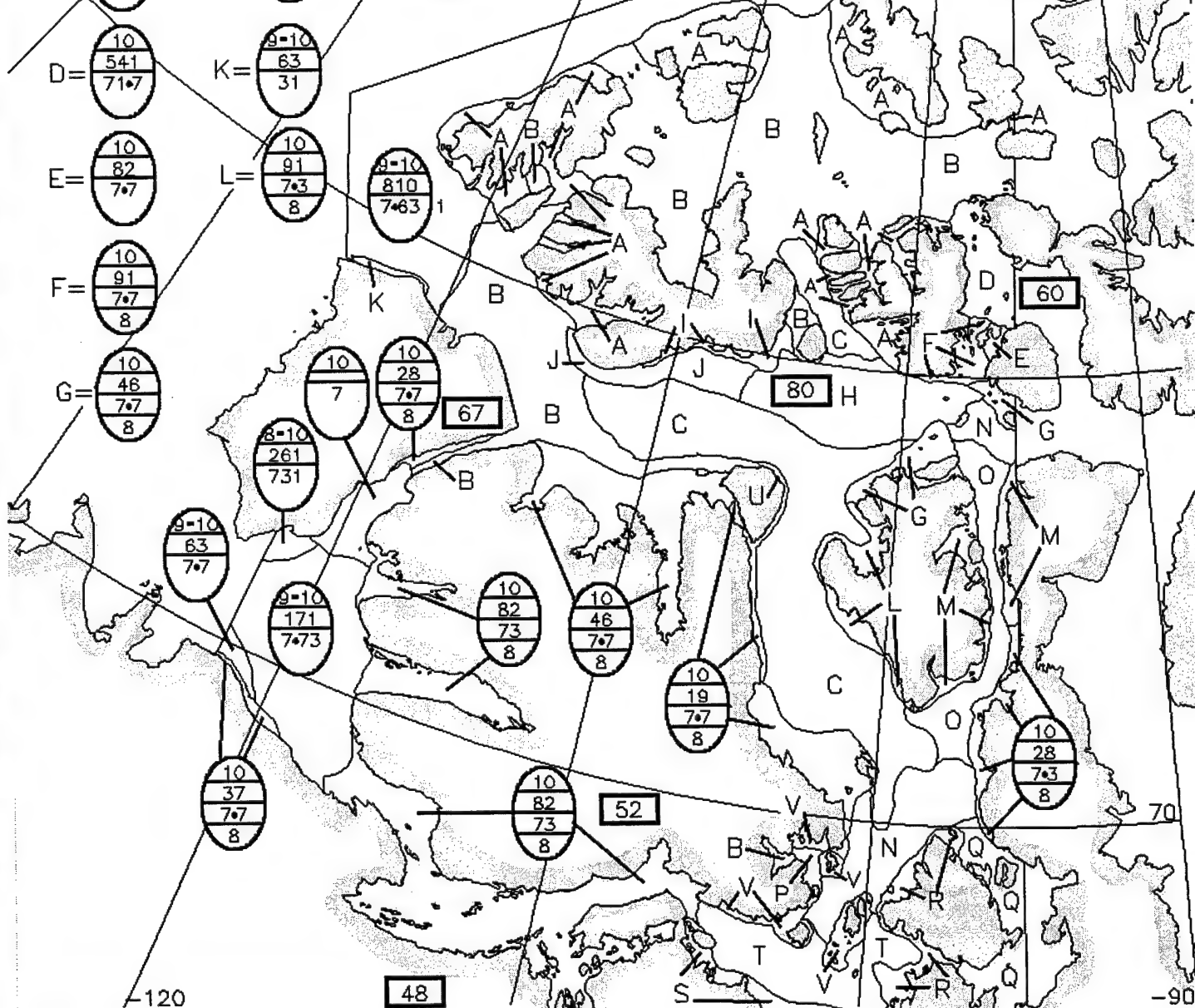
RADAR.....

P= $\frac{10}{37}$
Q= $\frac{10}{28}$
R= $\frac{10}{55}$
S= $\frac{10}{3}$
T= $\frac{9-10}{90}$
U= $\frac{10}{19}$
V= $\frac{10}{64}$

CM = THEORETICAL ICE THICKNESS³⁵ IN CENTIMETERS

A= $\frac{10}{7}$
B= $\frac{10}{91}$
C= $\frac{10}{91}$
D= $\frac{10}{541}$
E= $\frac{10}{82}$
F= $\frac{10}{91}$
G= $\frac{10}{46}$
H= $\frac{9-10}{423}$
I= $\frac{10}{145}$
J= $\frac{9-10}{216}$
K= $\frac{9-10}{63}$
L= $\frac{10}{91}$
M= $\frac{10}{28}$
N= $\frac{10}{46}$
O= $\frac{9-10}{261}$

75



120

48

90

CANARCH WEST ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 26 NOV 96

DATA SOURCES DATE

RECONNAISSANCE.....

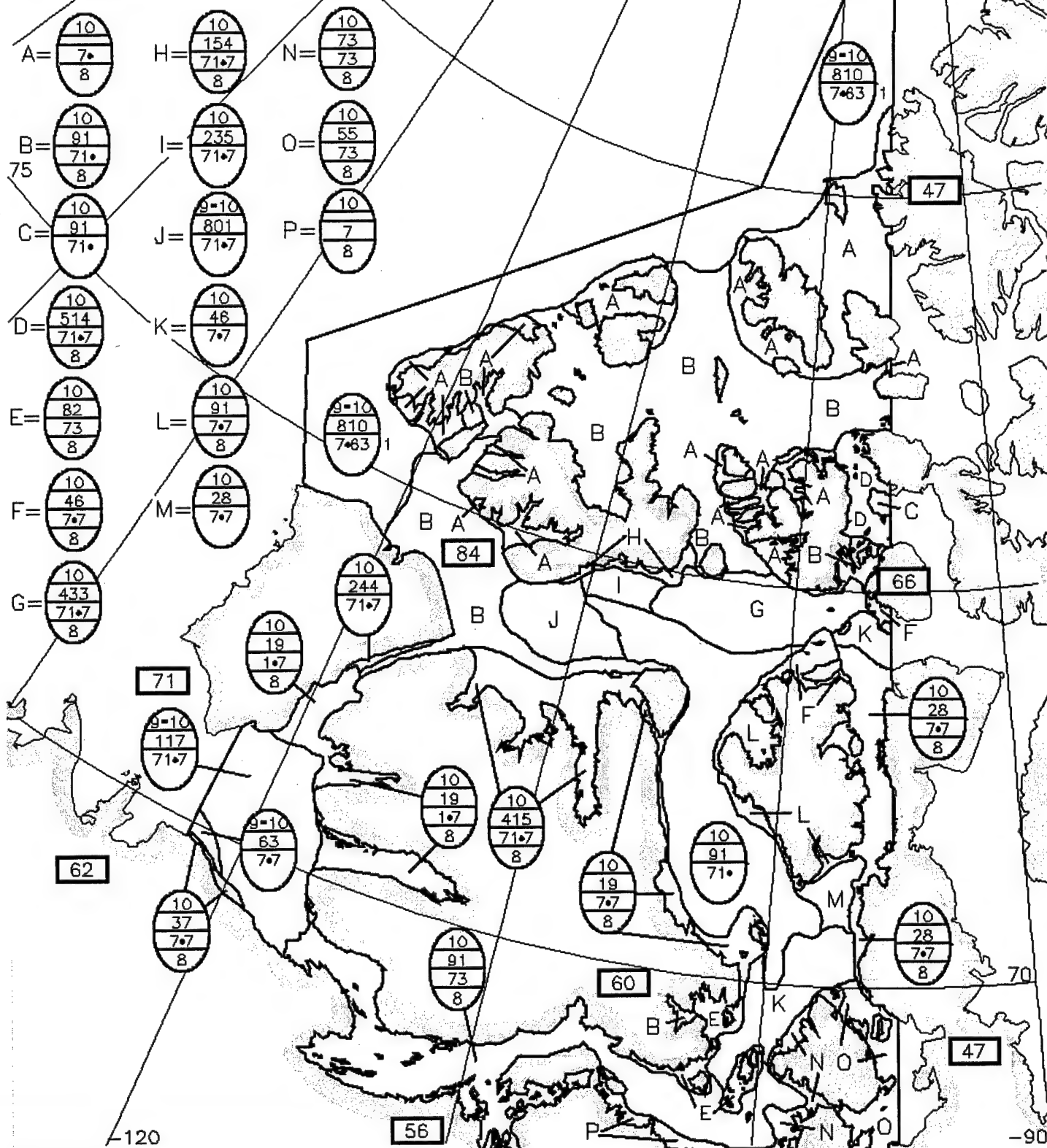
SHIP.....

SHORE.....

VISIBLE/INFRARED..... 25 NOV 96

RADAR.....

CM = THEORETICAL ICE THICKNESS
IN CENTIMETERS



CANARCH WEST ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 3 DEC 96

DATA SOURCES DATE

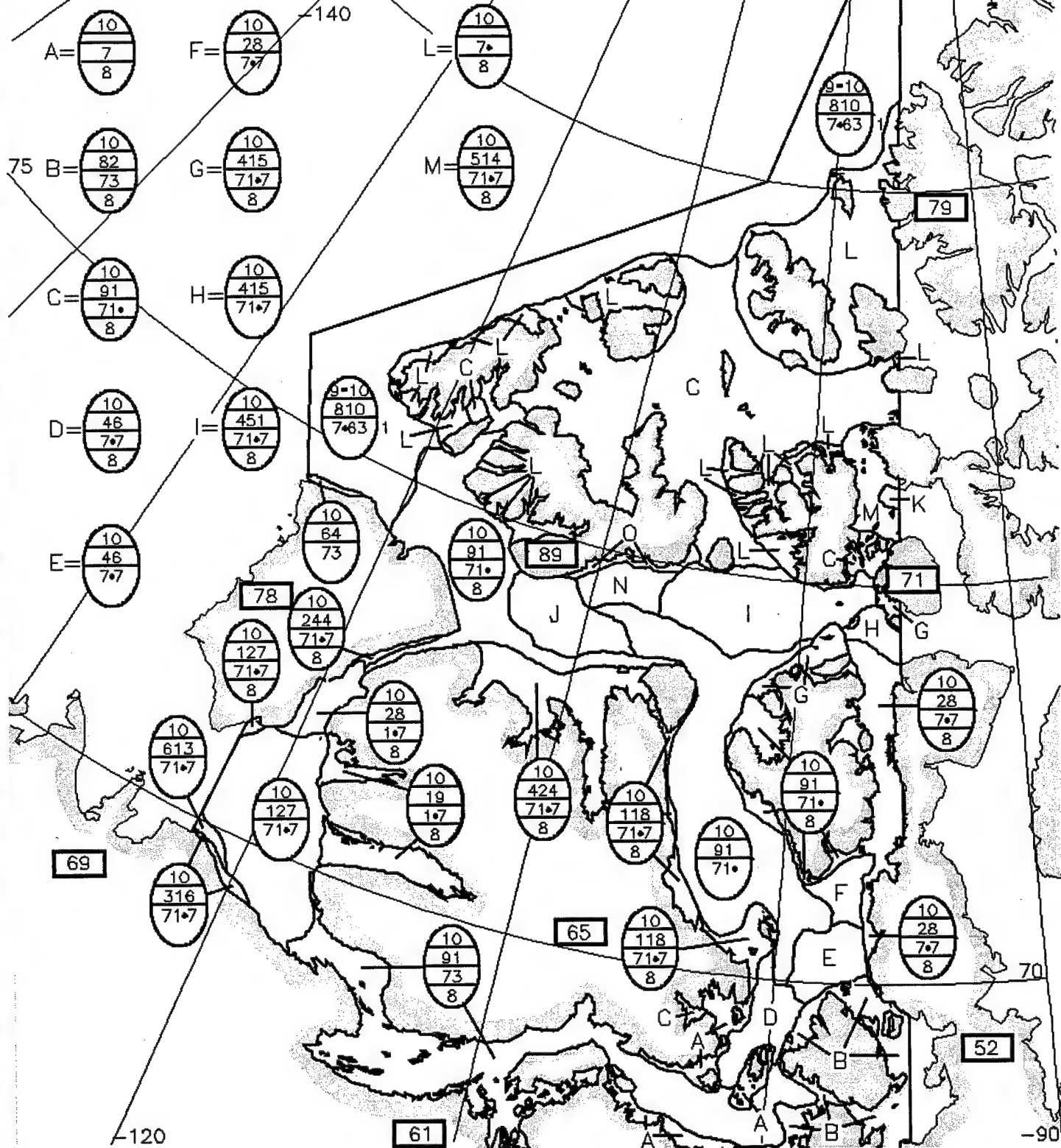
RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 2 DEC 96

RADAR.....



CANARCH WEST ICE ANALYSIS
NATIONAL ICE CENTER

ANALYSIS DATE: 10 DEC 96

DATA SOURCES	DATE
--------------	------

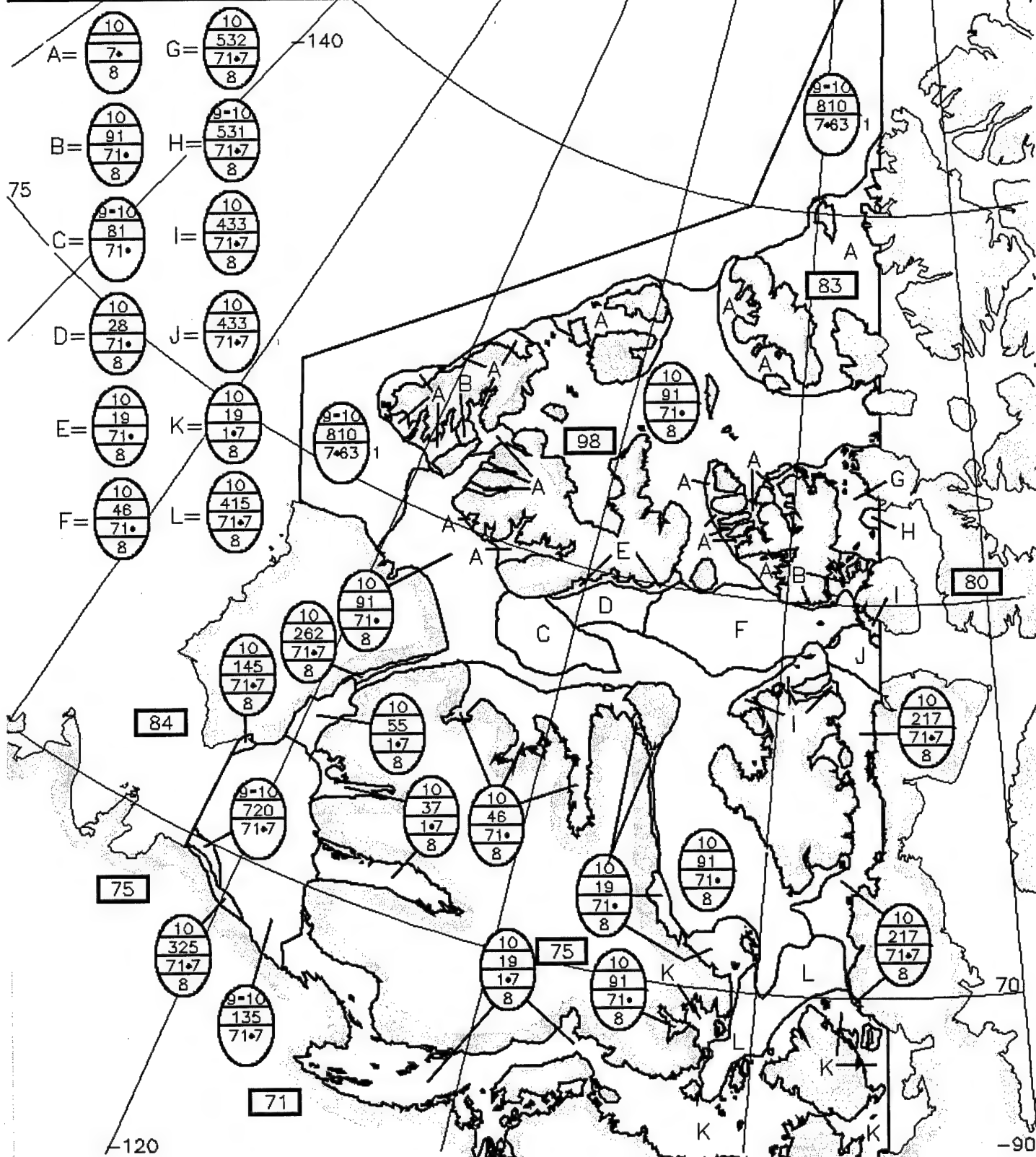
RECONNAISSANCE.....

SHIP.....

SHORE.....
VISIBLE/INFRARED..... 9 DEC 96

RADAR.....

CM = THEORETICAL ICE THICKNESS
IN CENTIMETERS



CANARCH WEST ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 17 DEC 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 16 DEC 96

RADAR.....

A = $\frac{9-10}{81}$ 71° 8
G = $\frac{10}{91}$ 71° 8

B = $\frac{10}{424}$ 71° 8
H = $\frac{10}{19}$ 71° 8

C = $\frac{10}{442}$ 71° 8
I = $\frac{10}{28}$ 71° 8

D = $\frac{10}{442}$ 71° 8
J = $\frac{10}{55}$ 71° 8

E = $\frac{9-10}{54}$ 71° 8
K = $\frac{10}{7}$ 8

F = $\frac{10}{46}$ 71° 8
I = $\frac{10}{154}$ 71° 8

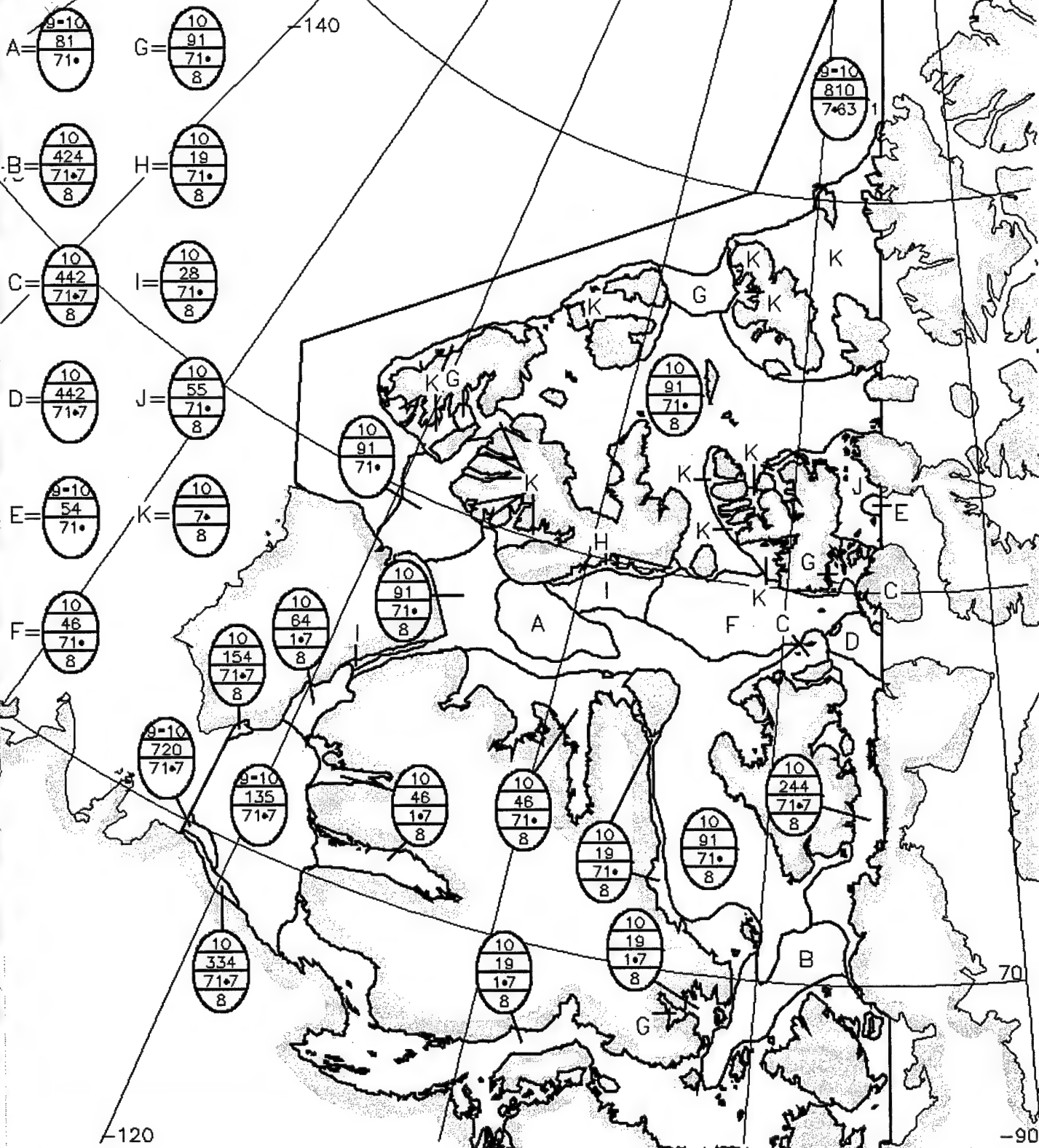
$\frac{9-10}{720}$ 71° 7
 $\frac{9-10}{135}$ 71° 7

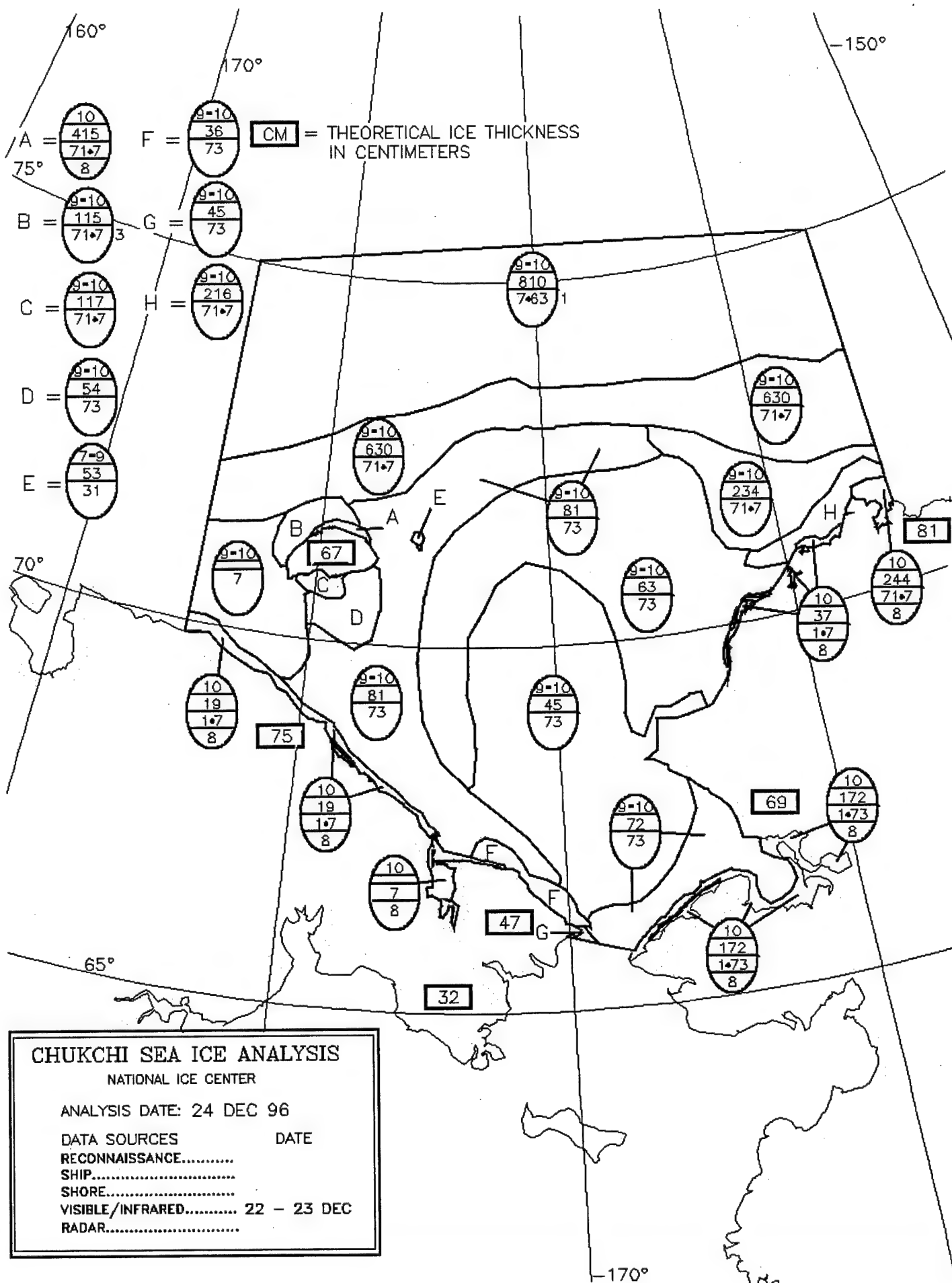
$\frac{10}{334}$ 71° 8
 $\frac{10}{46}$ 71° 8

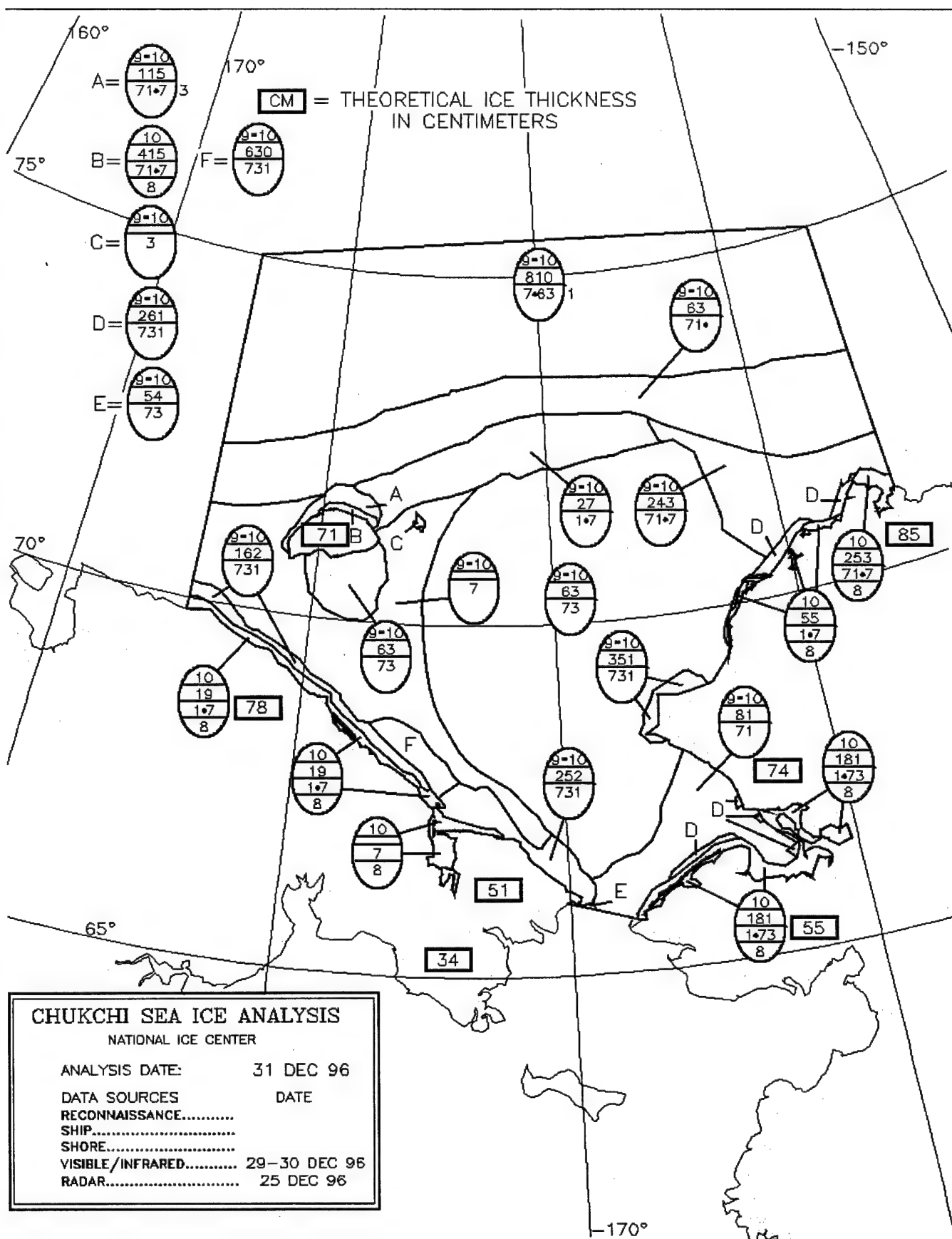
$\frac{10}{19}$ 71° 8
 $\frac{10}{19}$ 71° 8

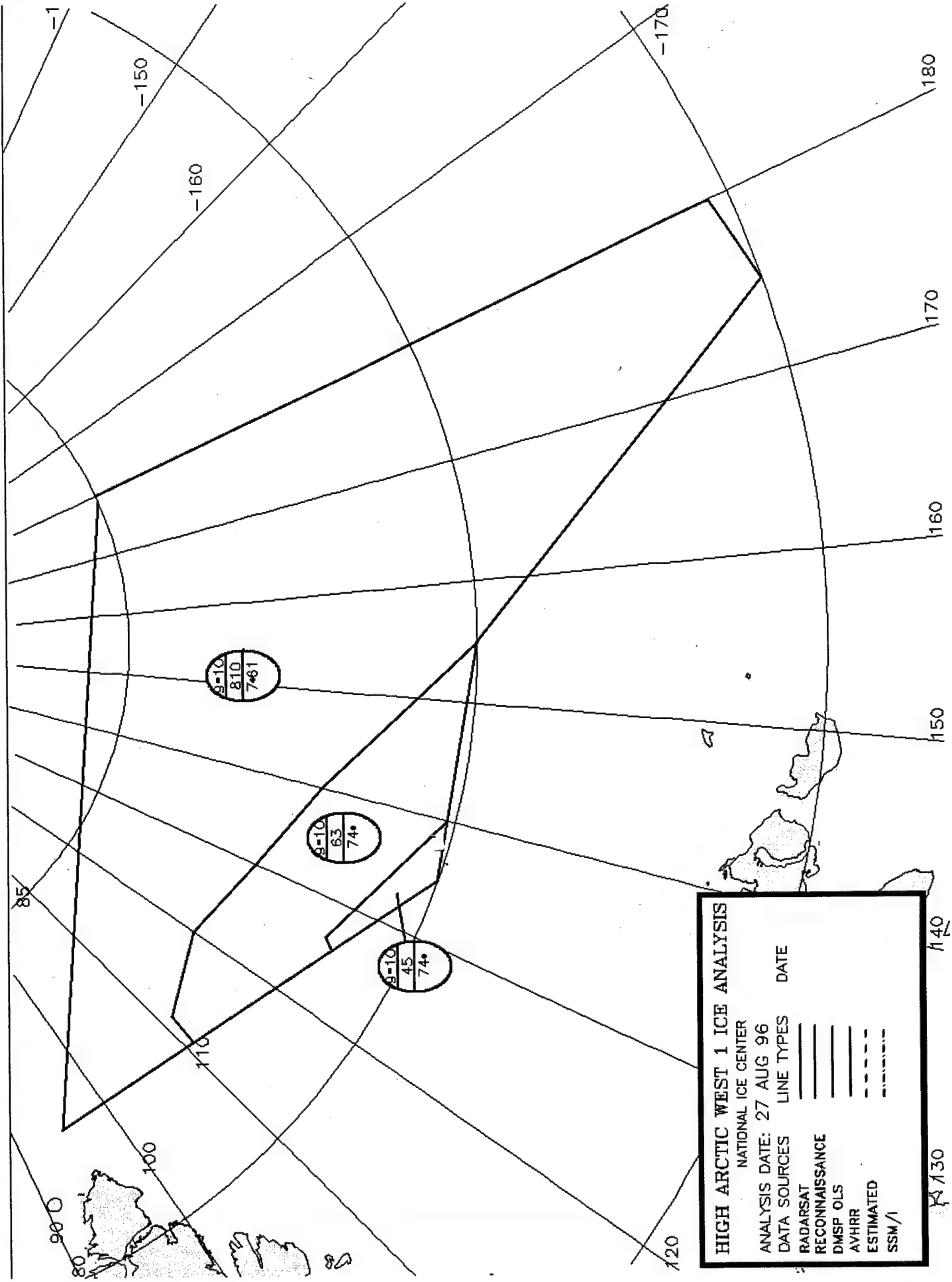
$\frac{10}{19}$ 71° 8
 $\frac{10}{19}$ 71° 8

$\frac{10}{19}$ 71° 8
 $\frac{10}{19}$ 71° 8







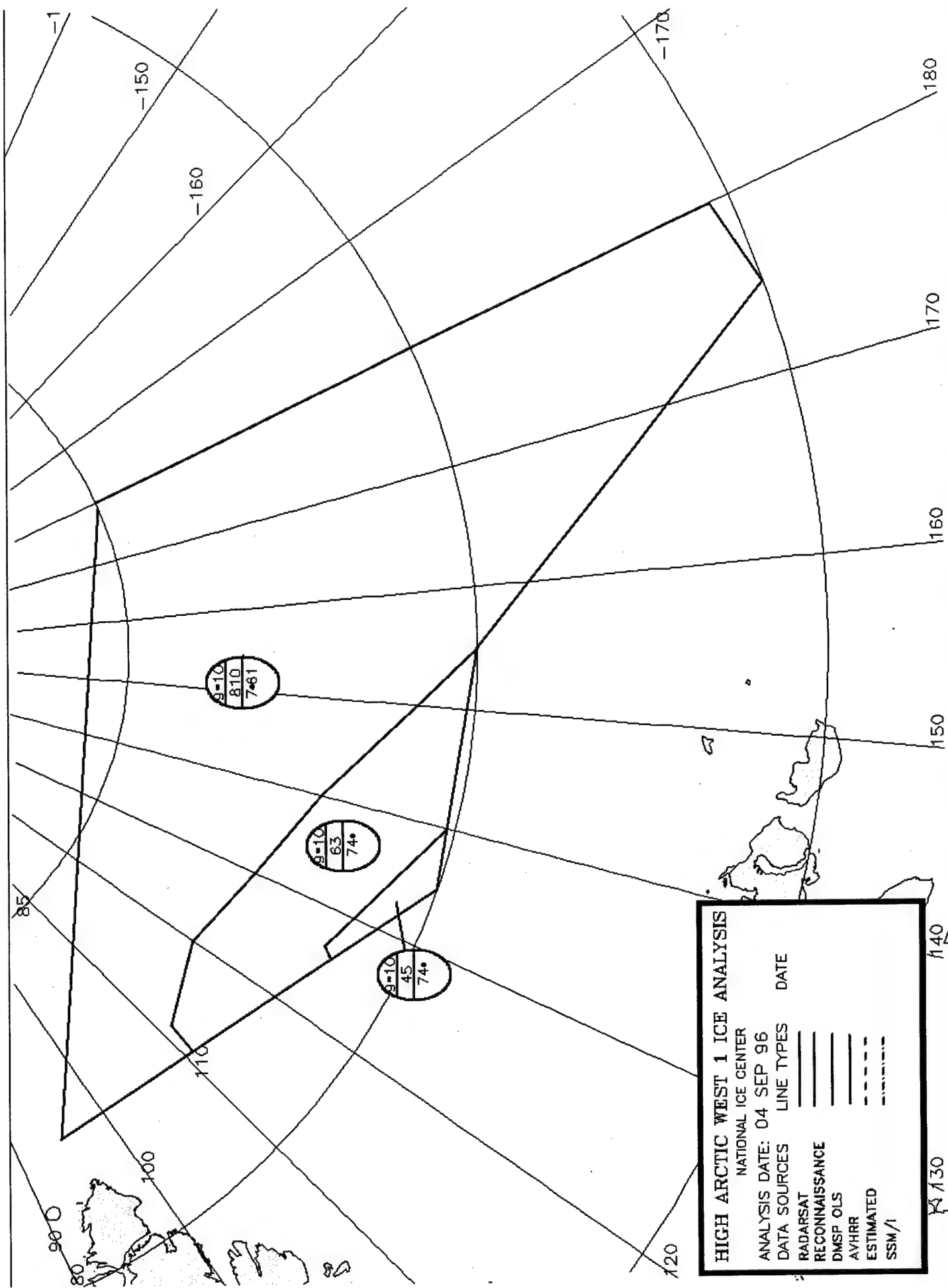


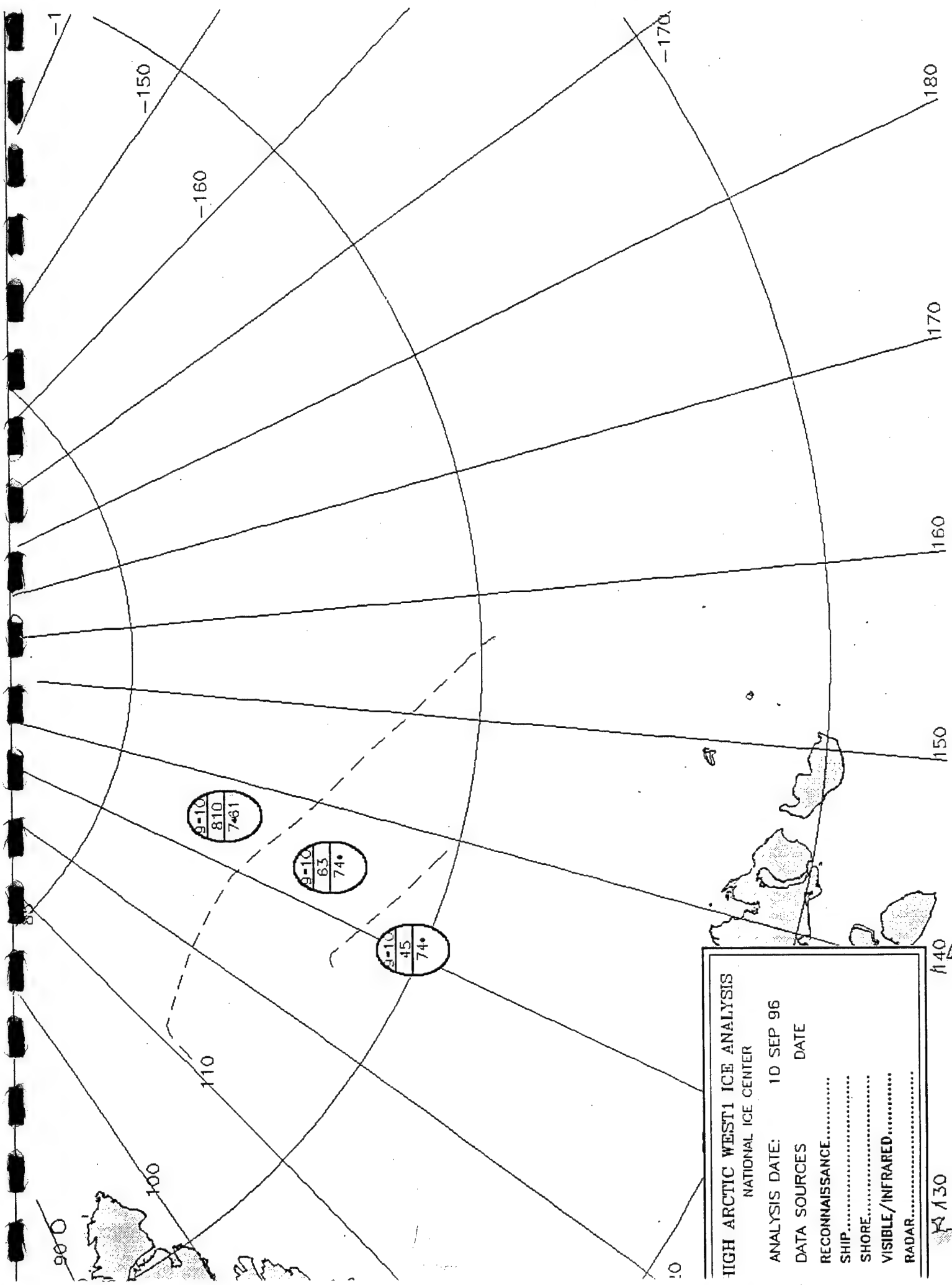
HIGH ARCTIC WEST 1 ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 27 AUG 96

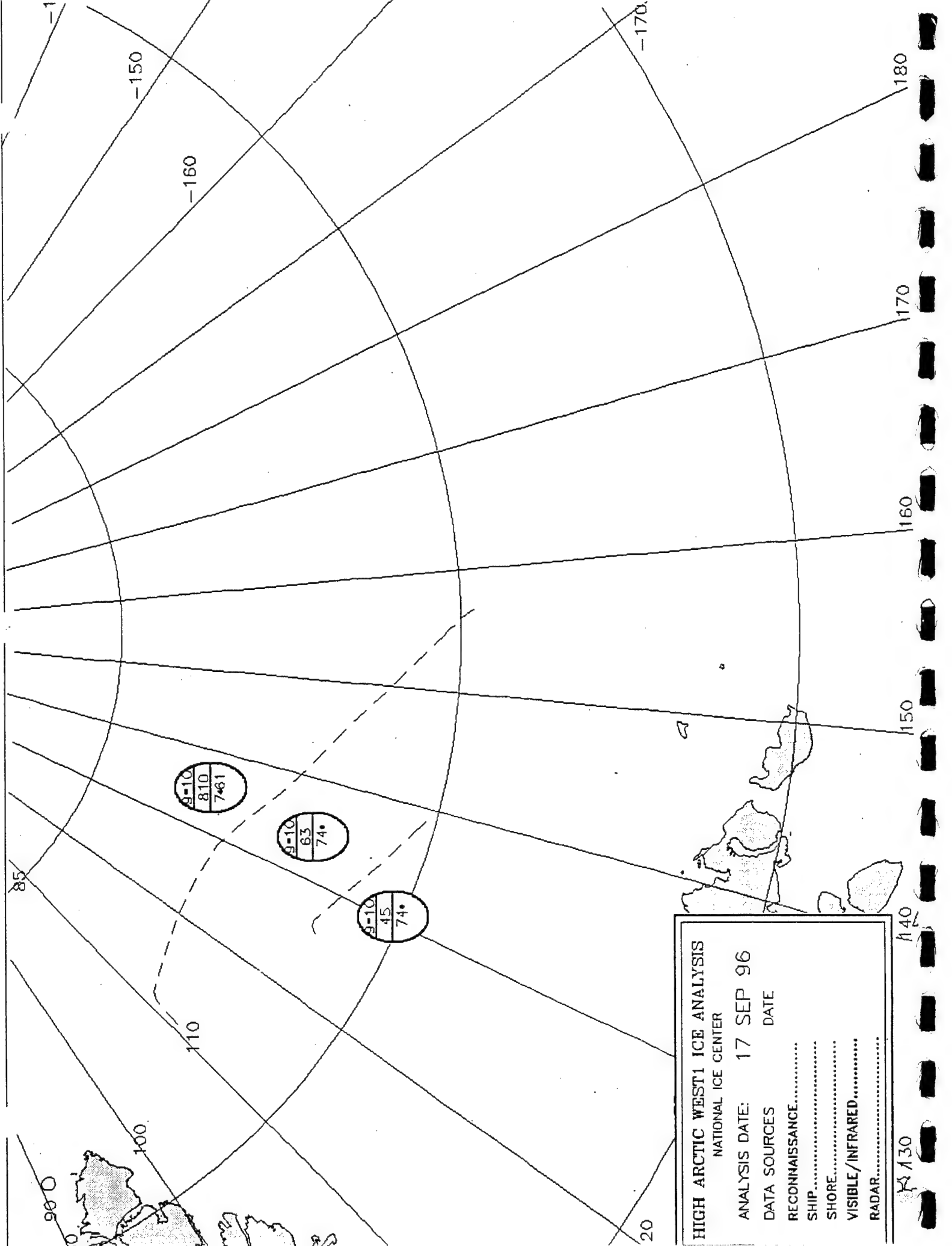
DATA SOURCES	LINE TYPES	DATE
RADARSAT	_____	_____
RECONNAISSANCE	_____	_____
DMSP OLS	_____	_____
AVHRR	_____	_____
ESTIMATED	-----	-----
SSM/I	-----	-----





HIGH ARCTIC WEST1 ICE ANALYSIS	
NATIONAL ICE CENTER	
ANALYSIS DATE:	10 SEP 96
DATA SOURCES	DATE
RECONNAISSANCE.....	
SHIP.....	
SHORE.....	
VISIBLE/INFRARED.....	
RADAR.....	

130



HIGH ARCTIC WEST1 ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 17 SEP 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED.....

RADAR.....

130

140

150

160

170

180

-170

-150

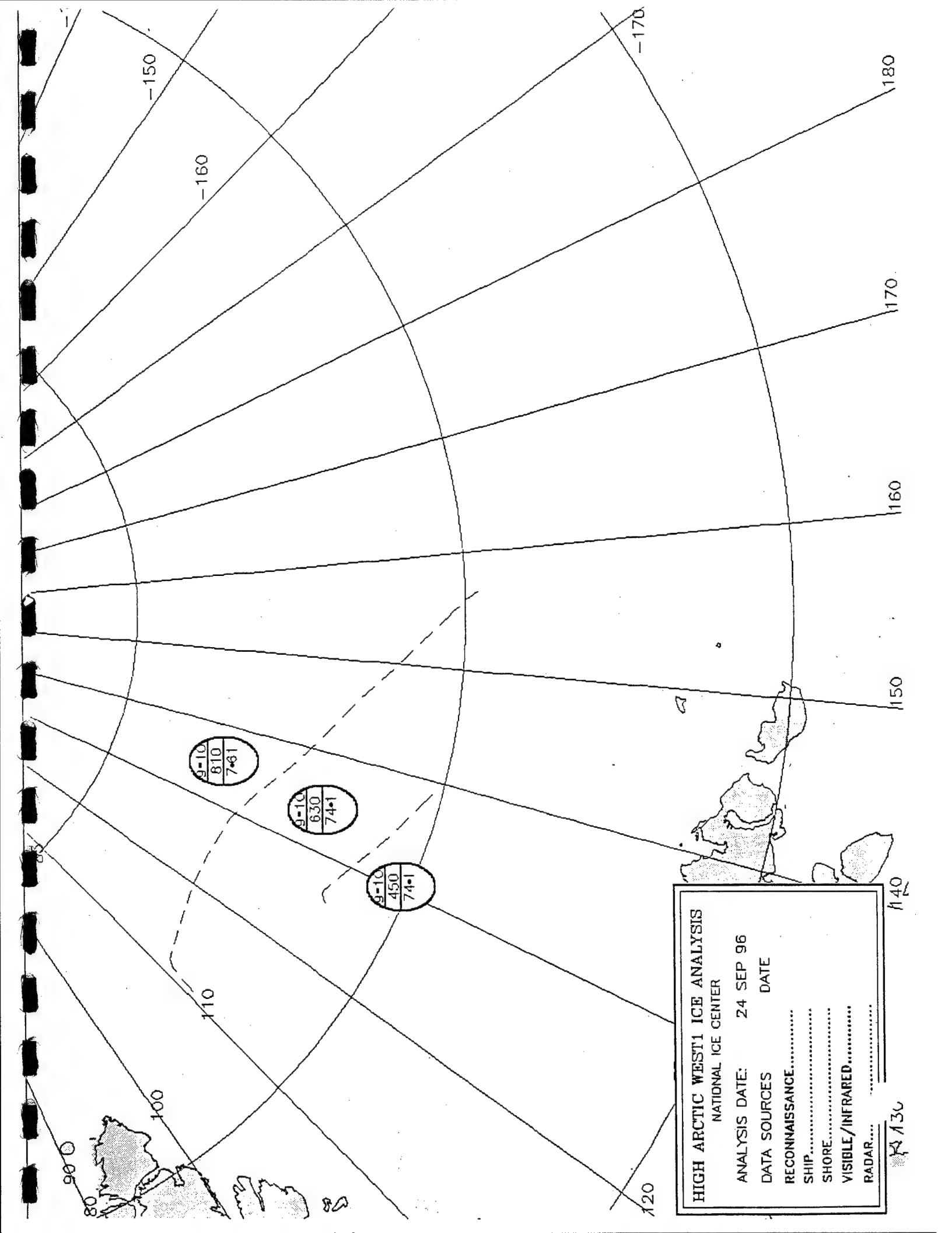
-160

110

100

900

20



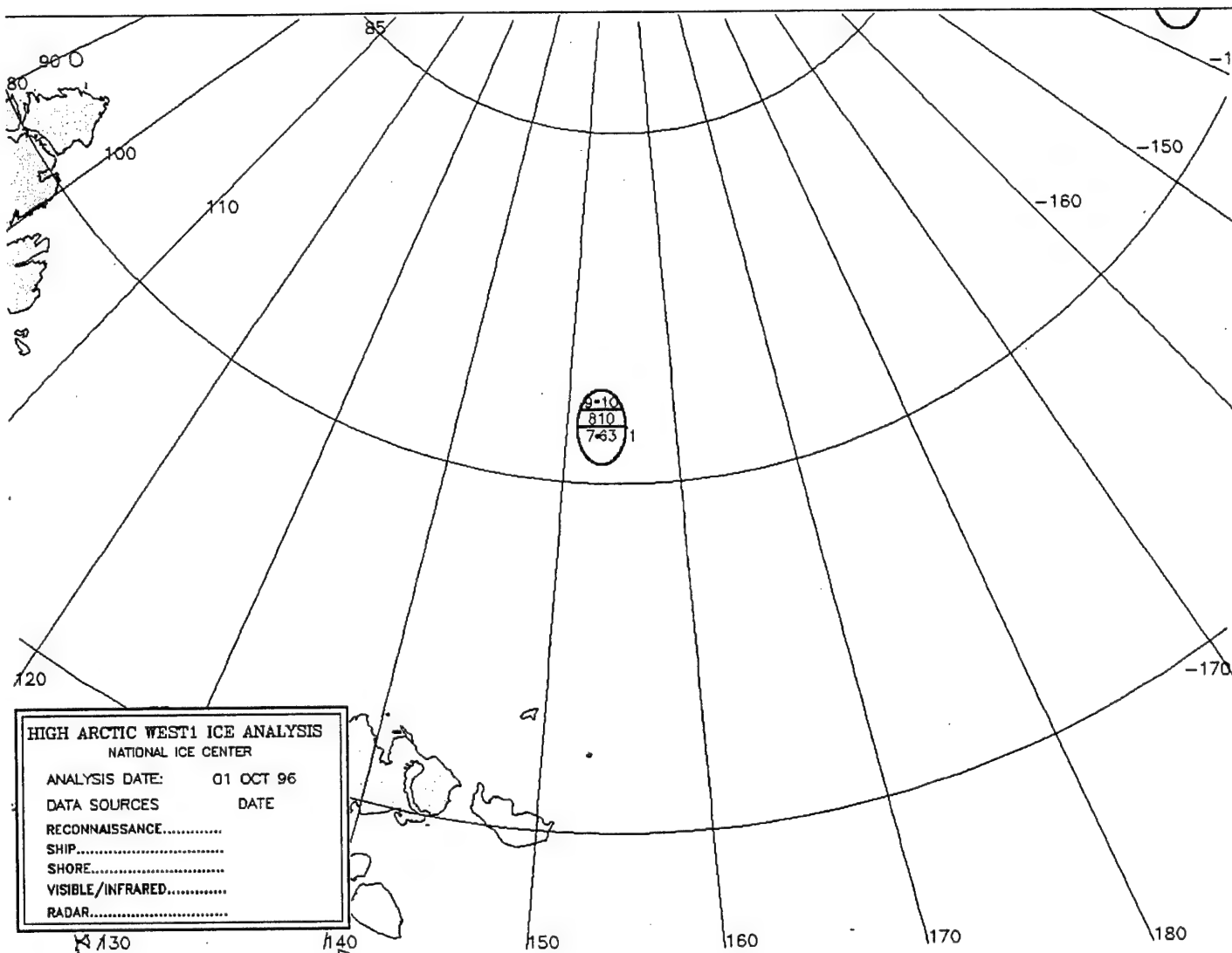
9-10
810
7-61

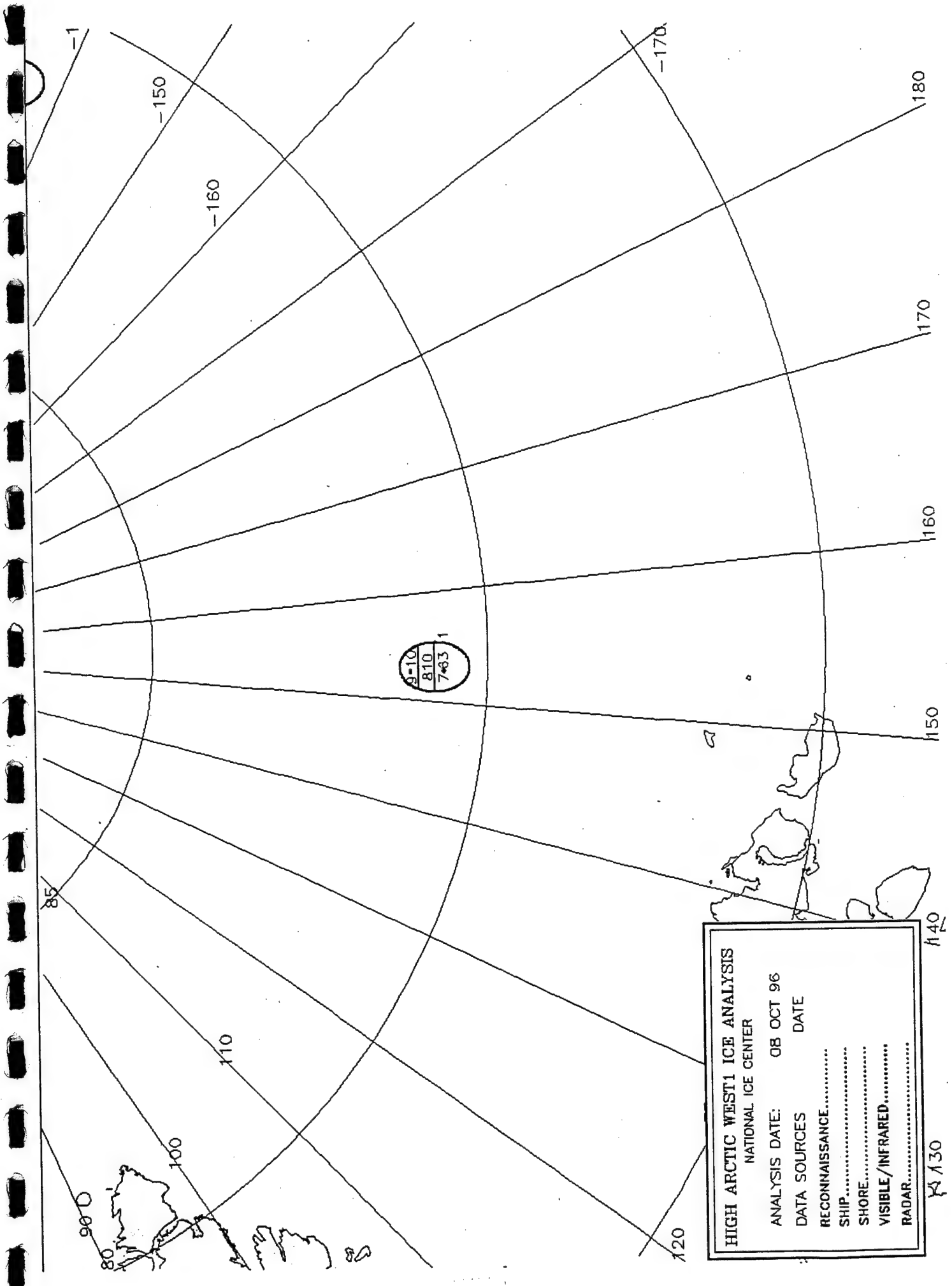
9-10
630
74-1

9-10
450
74-1

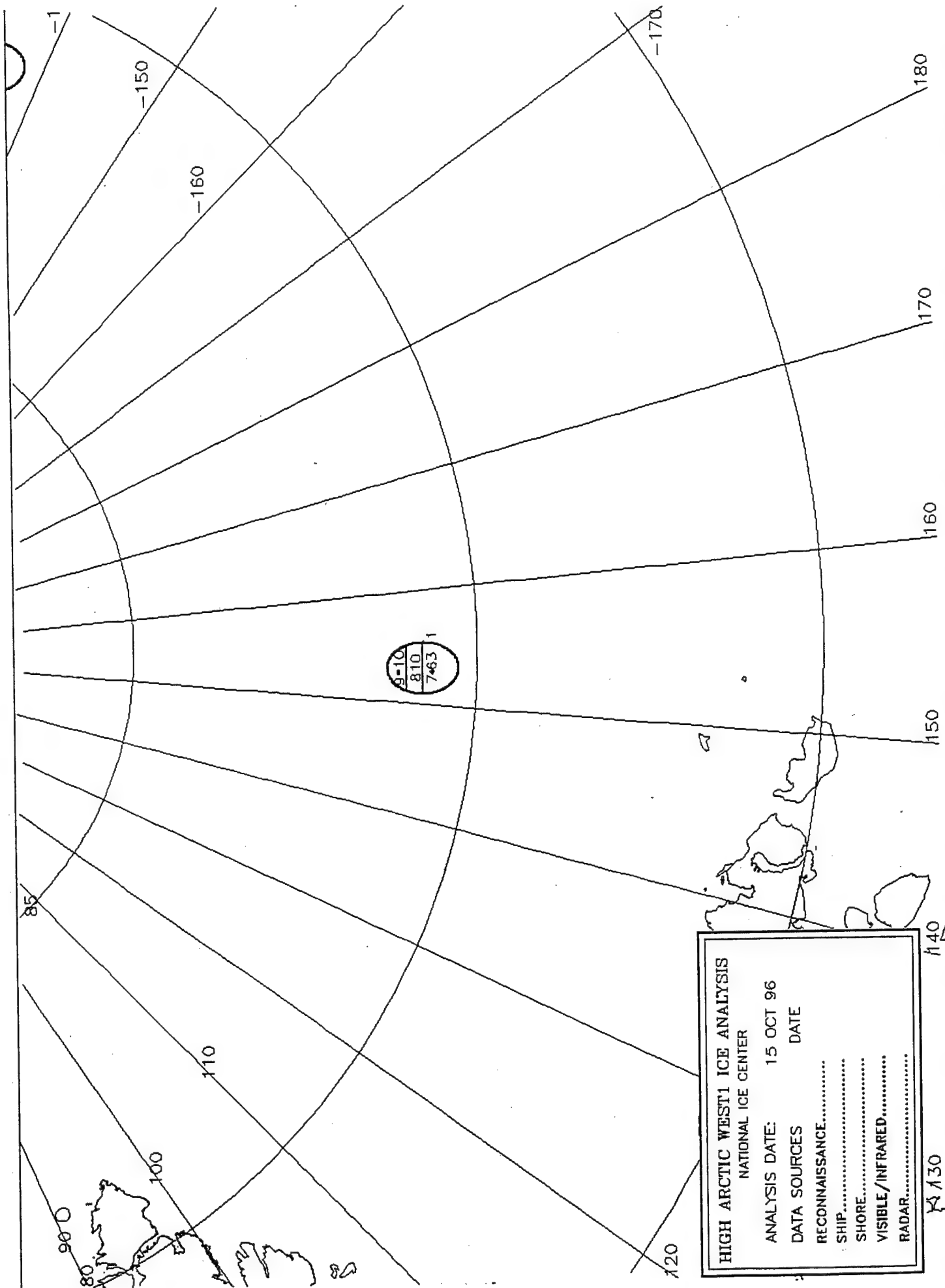
HIGH ARCTIC WEST1 ICE ANALYSIS	
NATIONAL ICE CENTER	
ANALYSIS DATE: 24 SEP 96	DATE
DATA SOURCES	
RECONNAISSANCE.....	
SHIP.....	
SHORE.....	
VISIBLE/INFRARED.....	
RADAR....	

130





HIGH ARCTIC WEST1 ICE ANALYSIS	
NATIONAL ICE CENTER	
ANALYSIS DATE:	08 OCT 96
DATA SOURCES	DATE
RECONNAISSANCE.....	
SHIP.....	
SHORE.....	
VISIBLE/INFRARED.....	
RADAR.....	



HIGH ARCTIC WEST1 ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 15 OCT 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

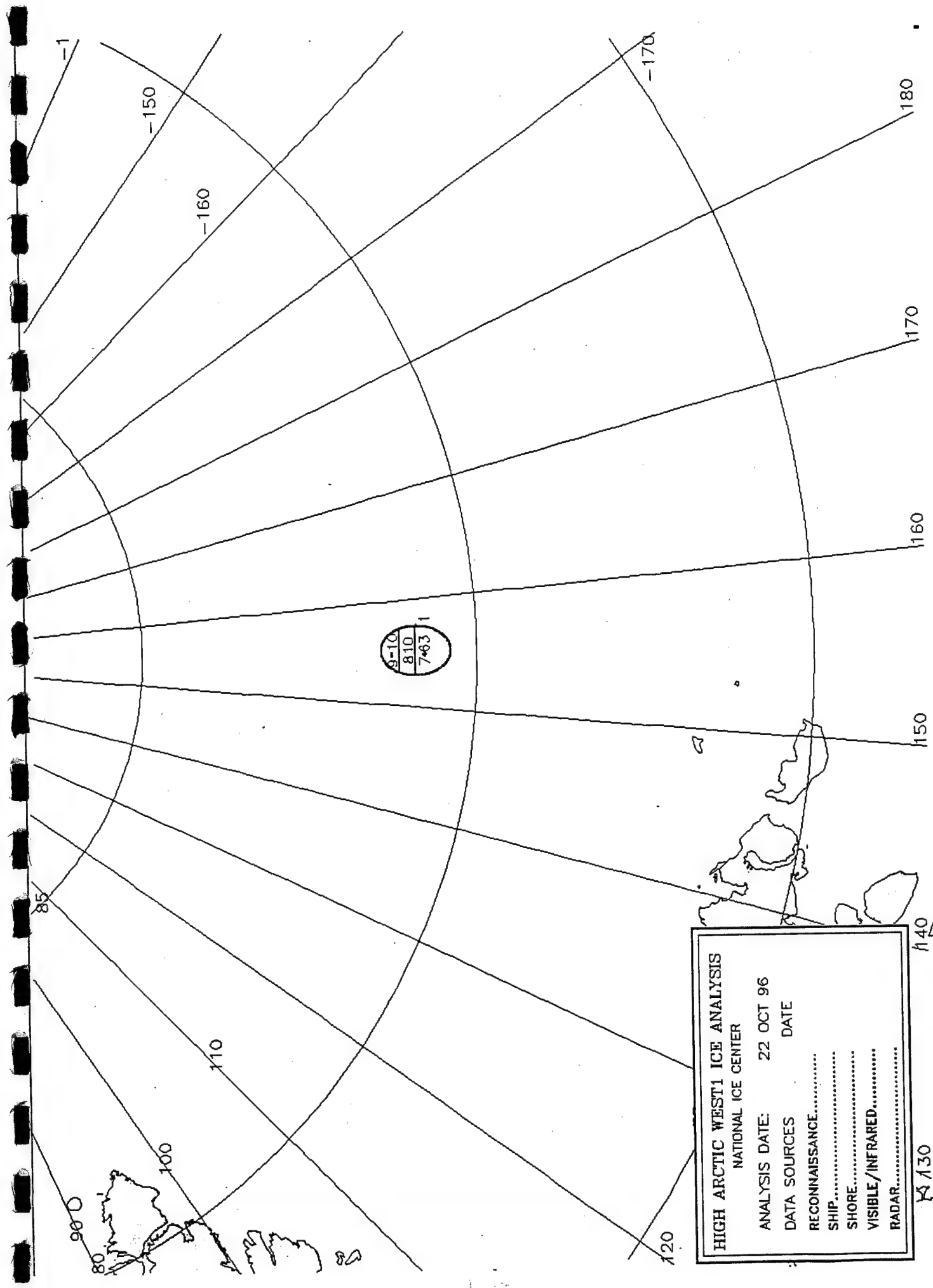
SHORE.....

VISIBLE/INFRARED.....

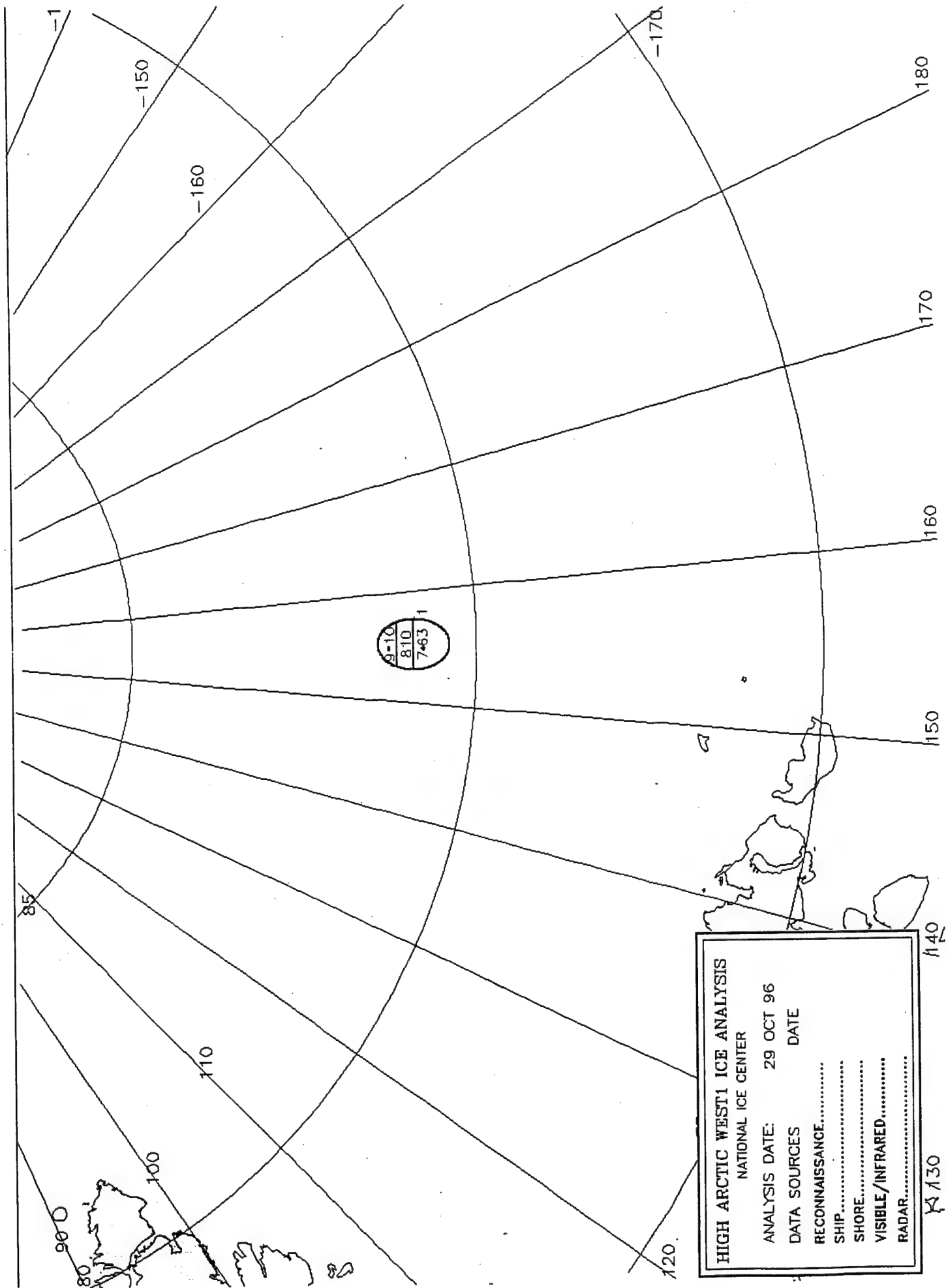
RADAR.....

130

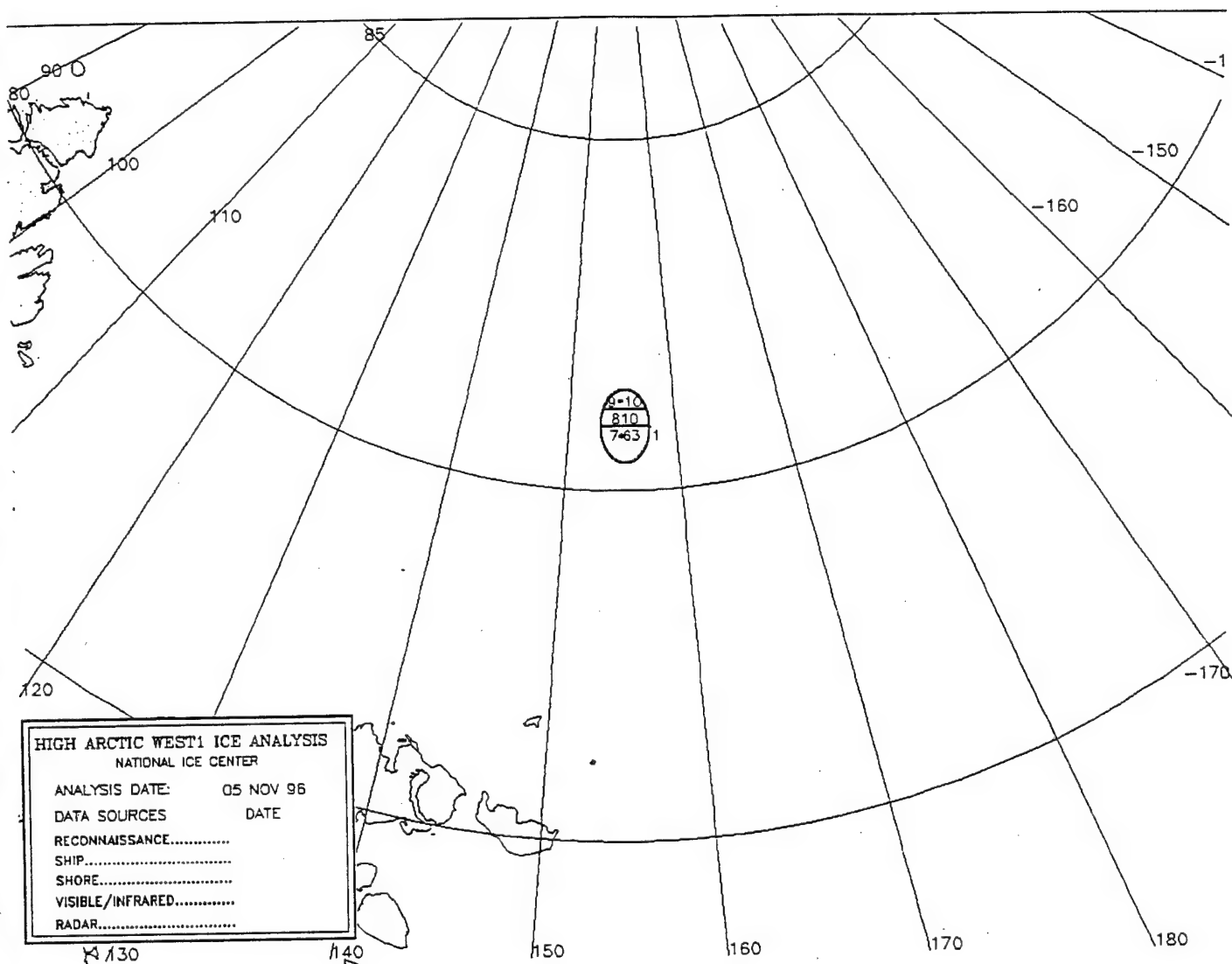
140

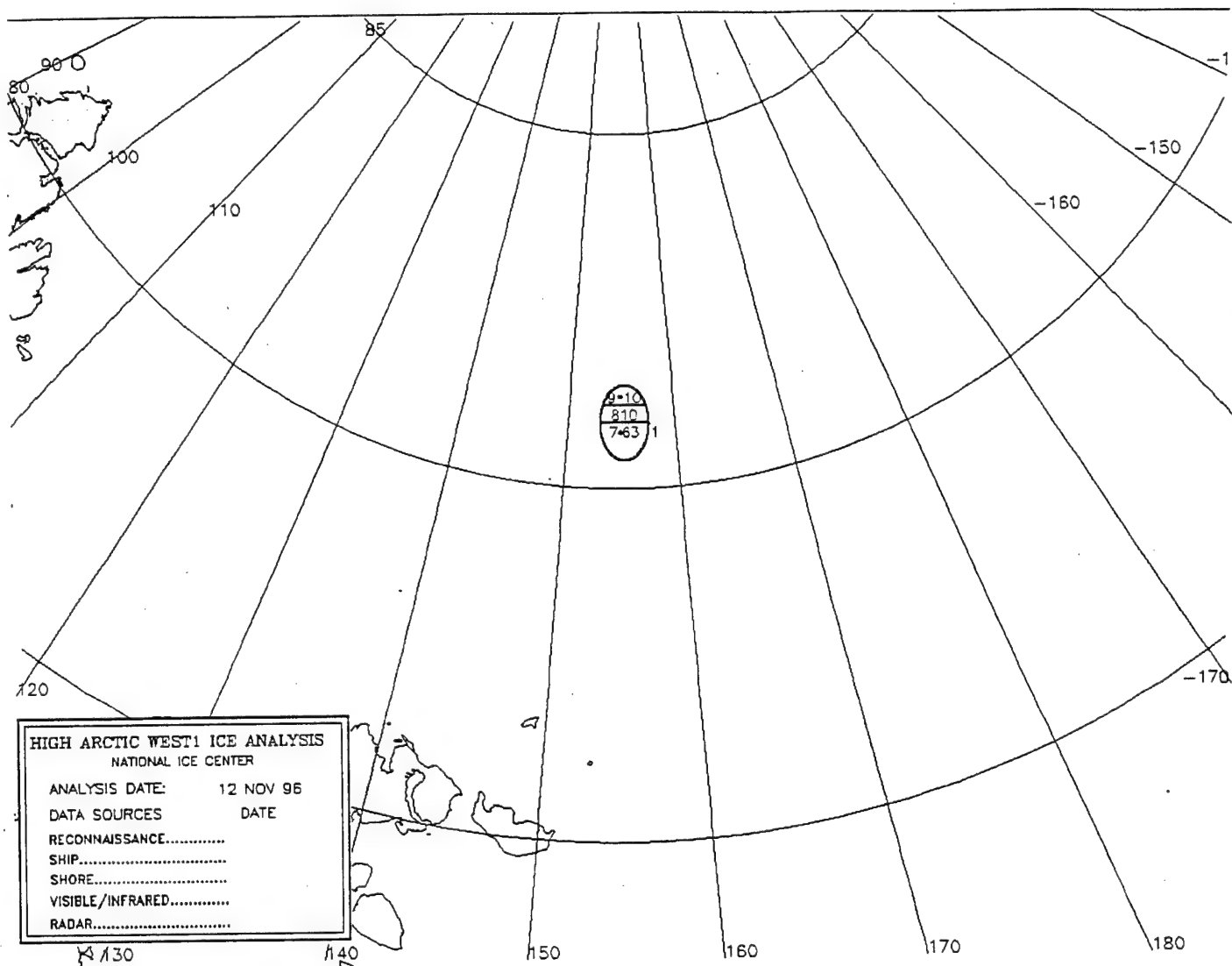


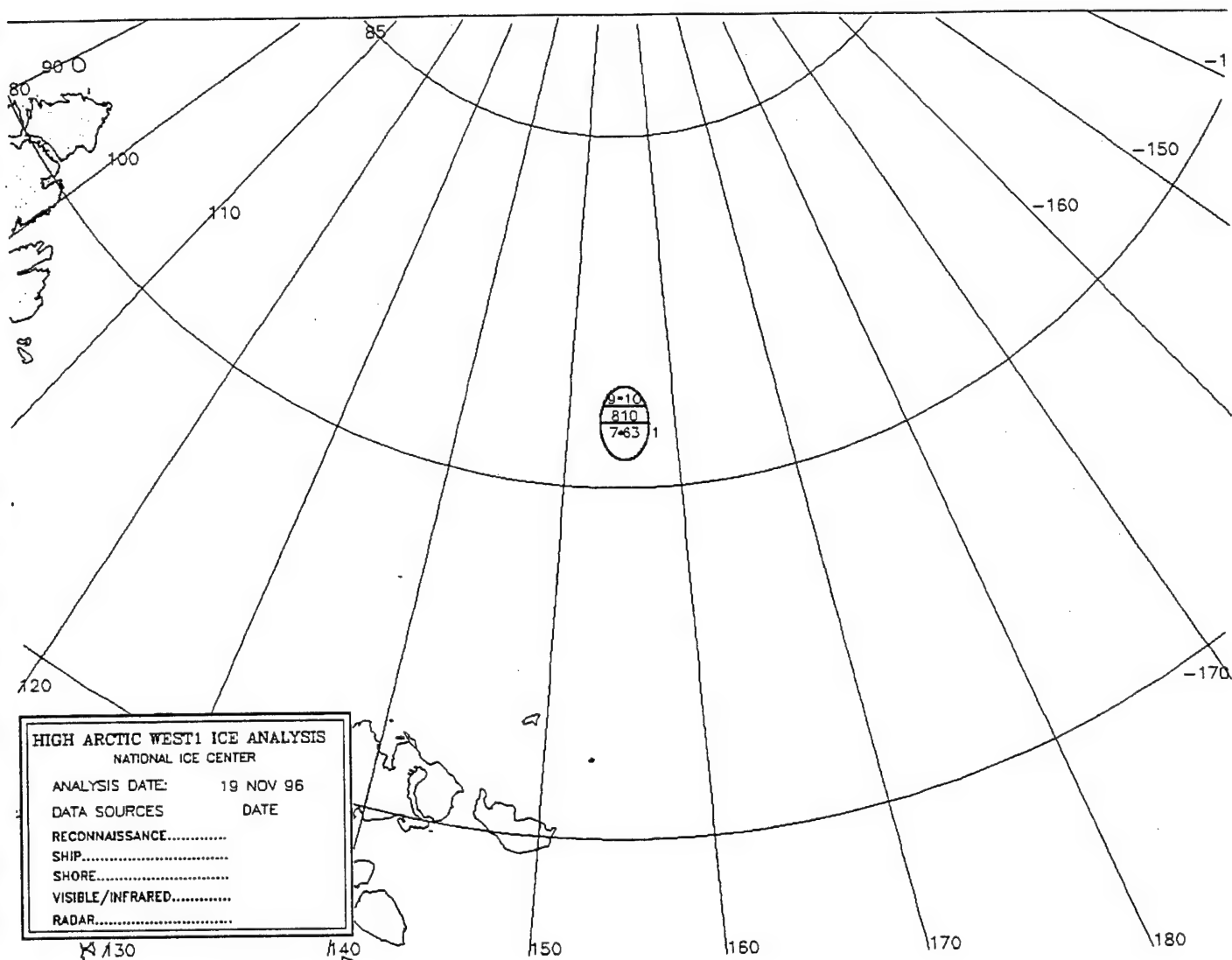
HIGH ARCTIC WEST1 ICE ANALYSIS	
NATIONAL ICE CENTER	
ANALYSIS DATE: 22 OCT 96	DATE
DATA SOURCES	
RECONNAISSANCE.....	
SHIP.....	
SHORE.....	
VISIBLE/INFRARED.....	
RADAR.....	

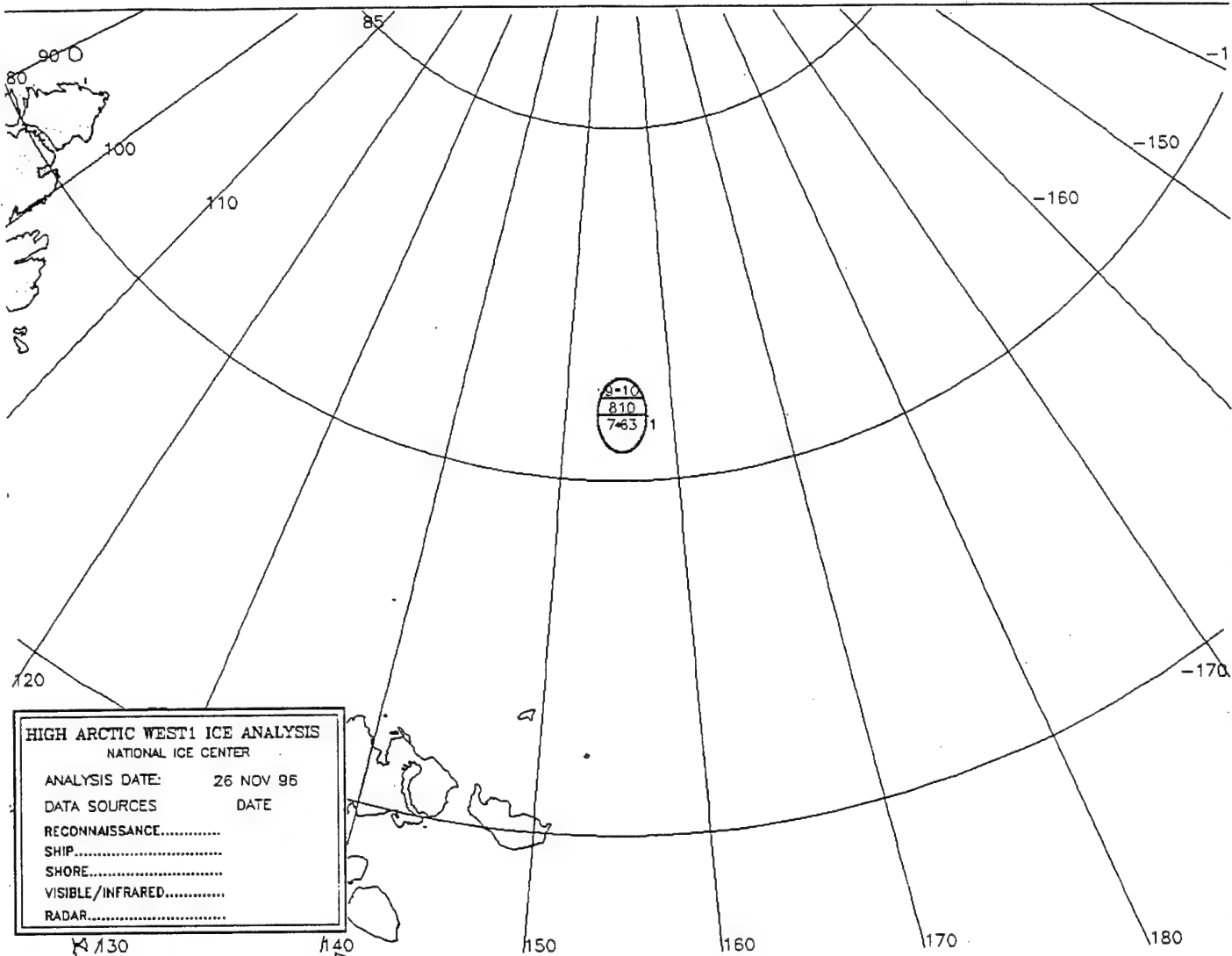


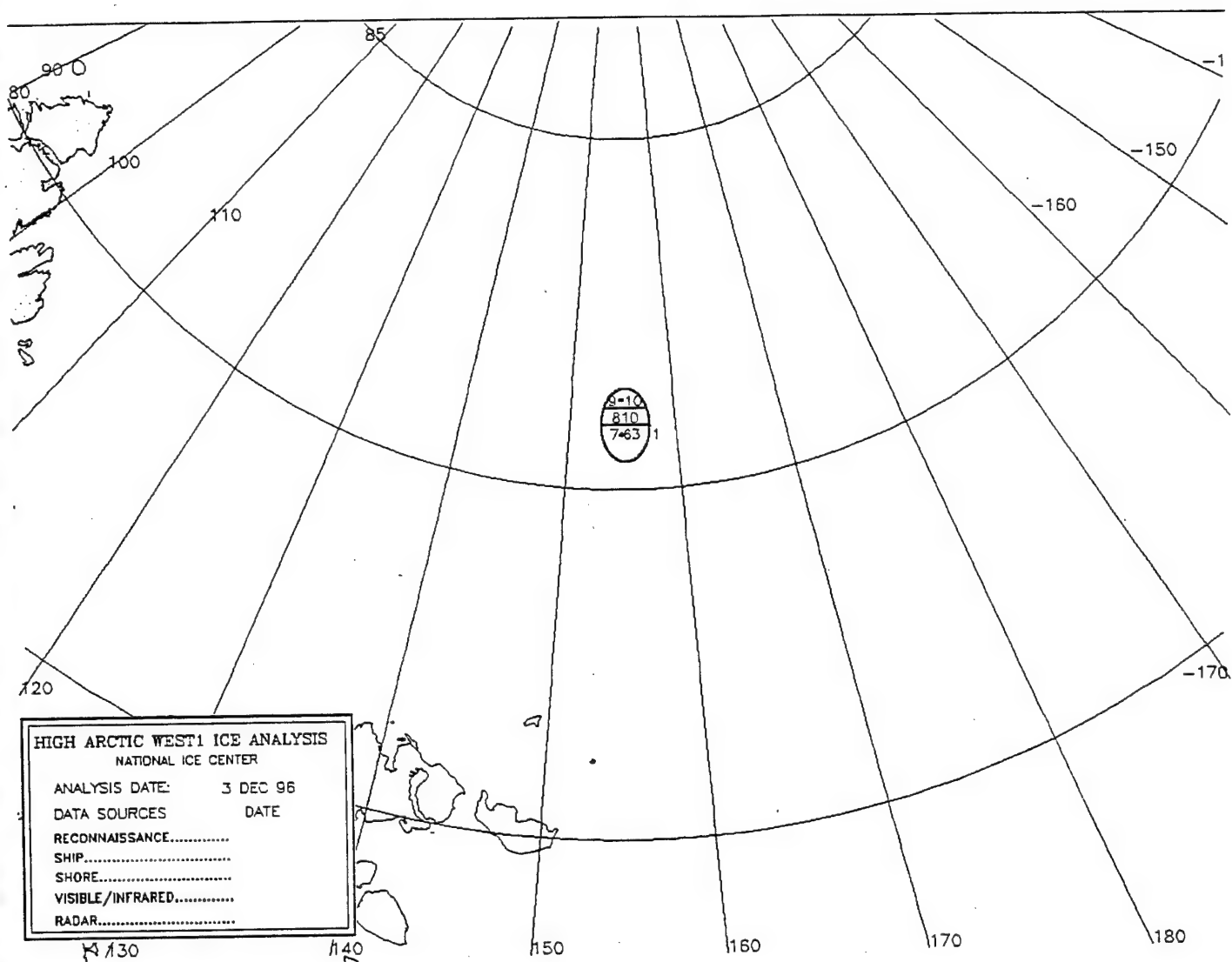
HIGH ARCTIC WEST1 ICE ANALYSIS	
NATIONAL ICE CENTER	
ANALYSIS DATE:	29 OCT 96
DATA SOURCES	DATE
RECONNAISSANCE.....	
SHIP.....	
SHORE.....	
VISIBLE/INFRARED.....	
RADAR.....	

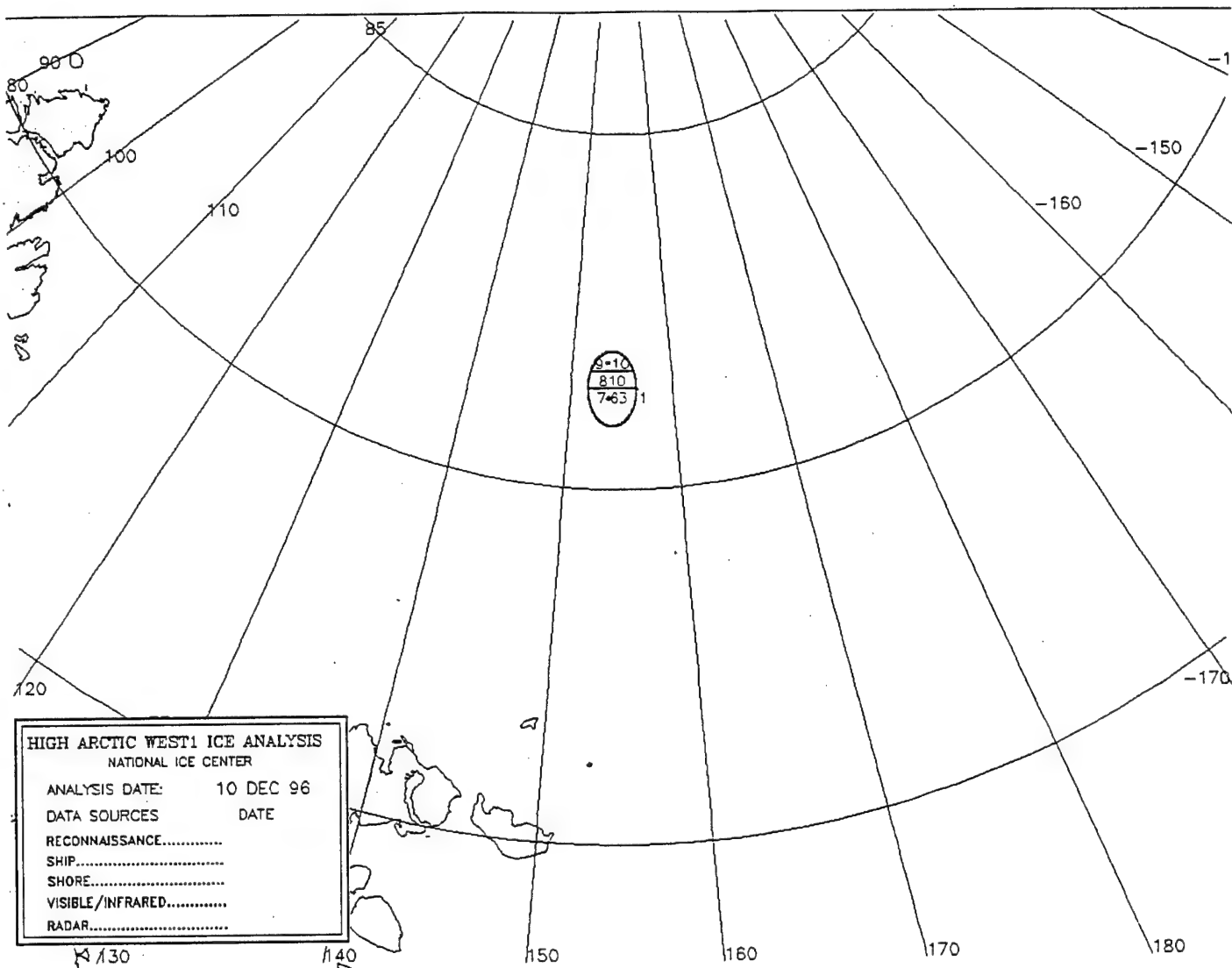


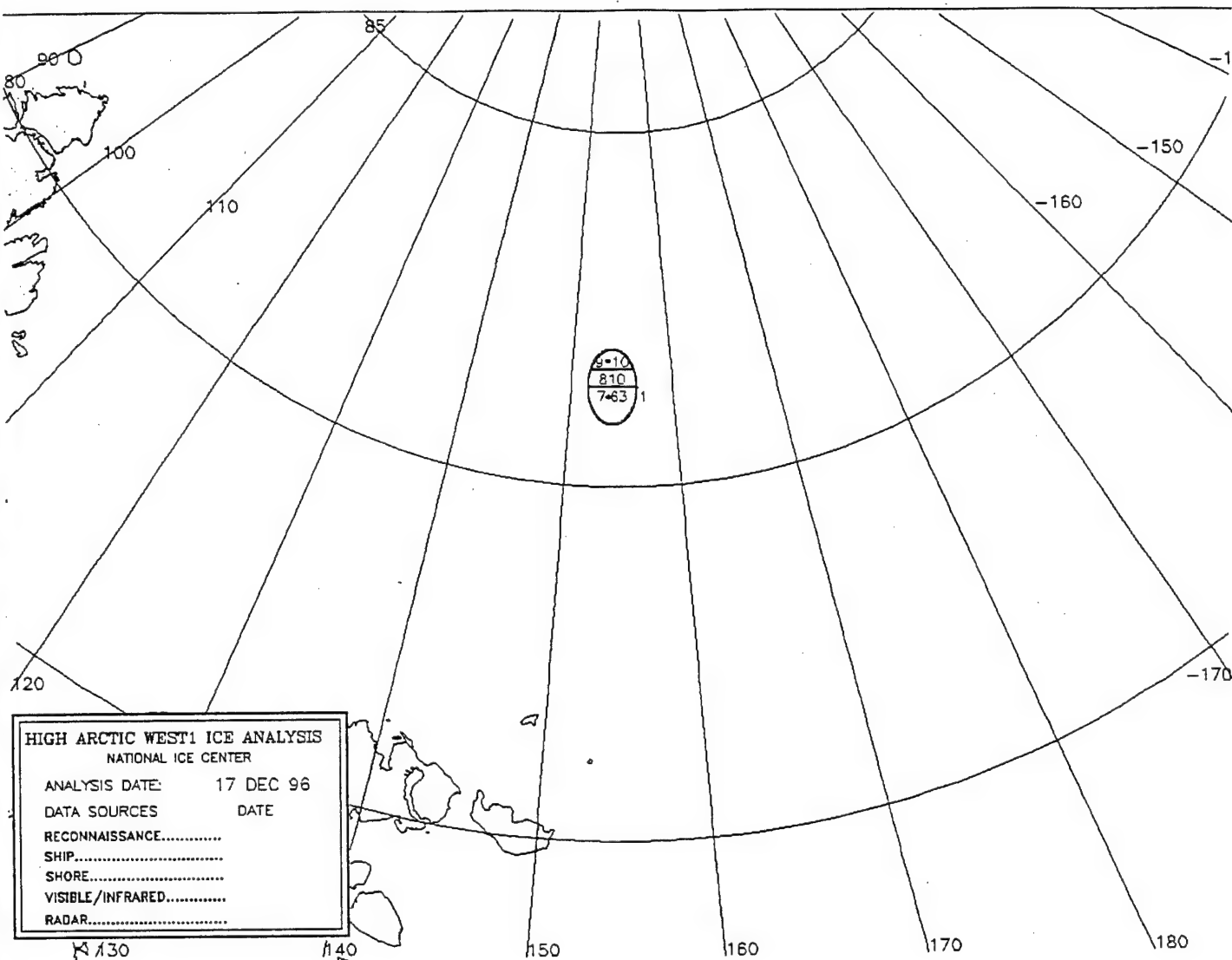












HIGH ARCTIC WEST1 ICE ANALYSIS
NATIONAL ICE CENTER

ANALYSIS DATE: 17 DEC 96

DATA SOURCES DATE

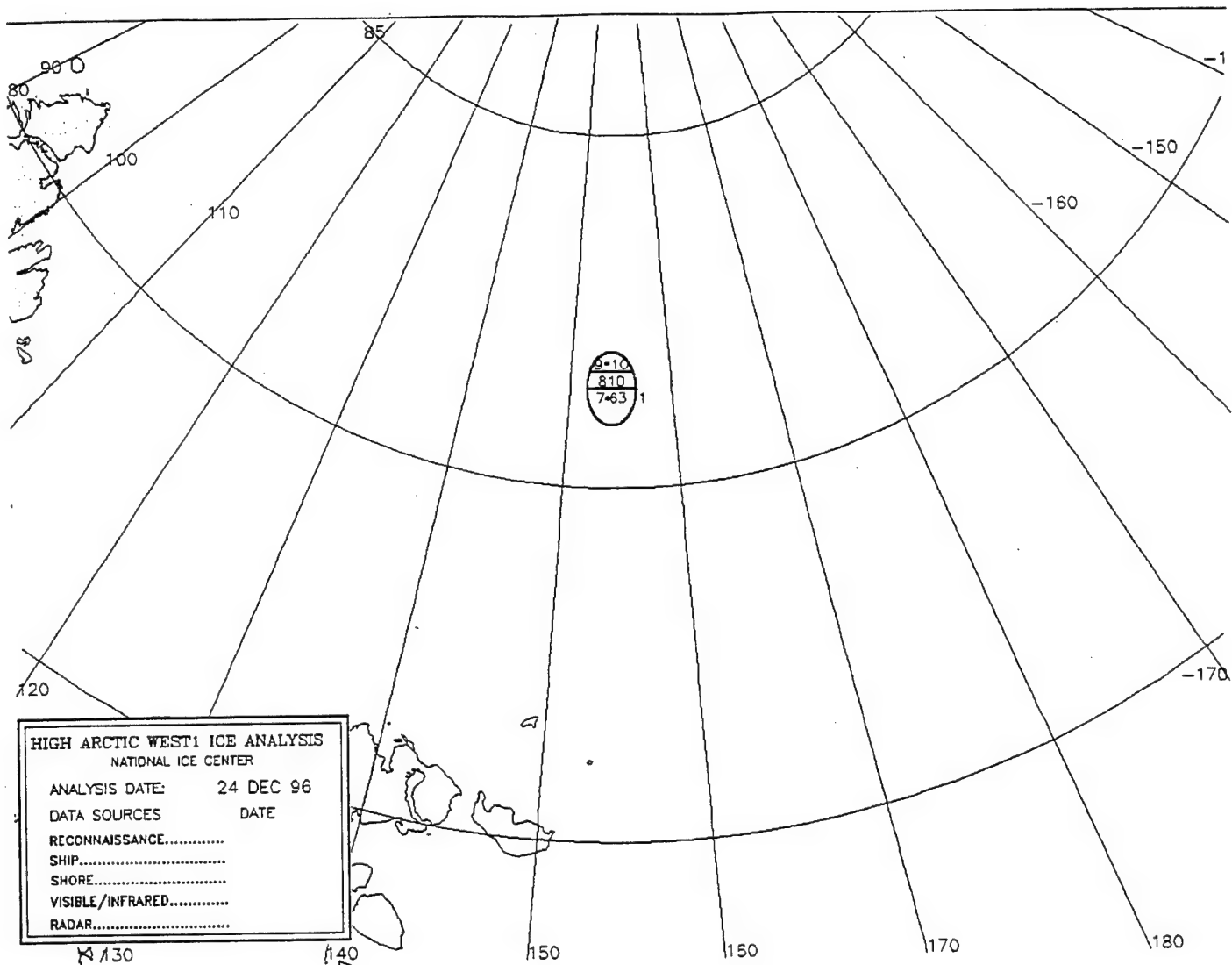
RECONNAISSANCE.....

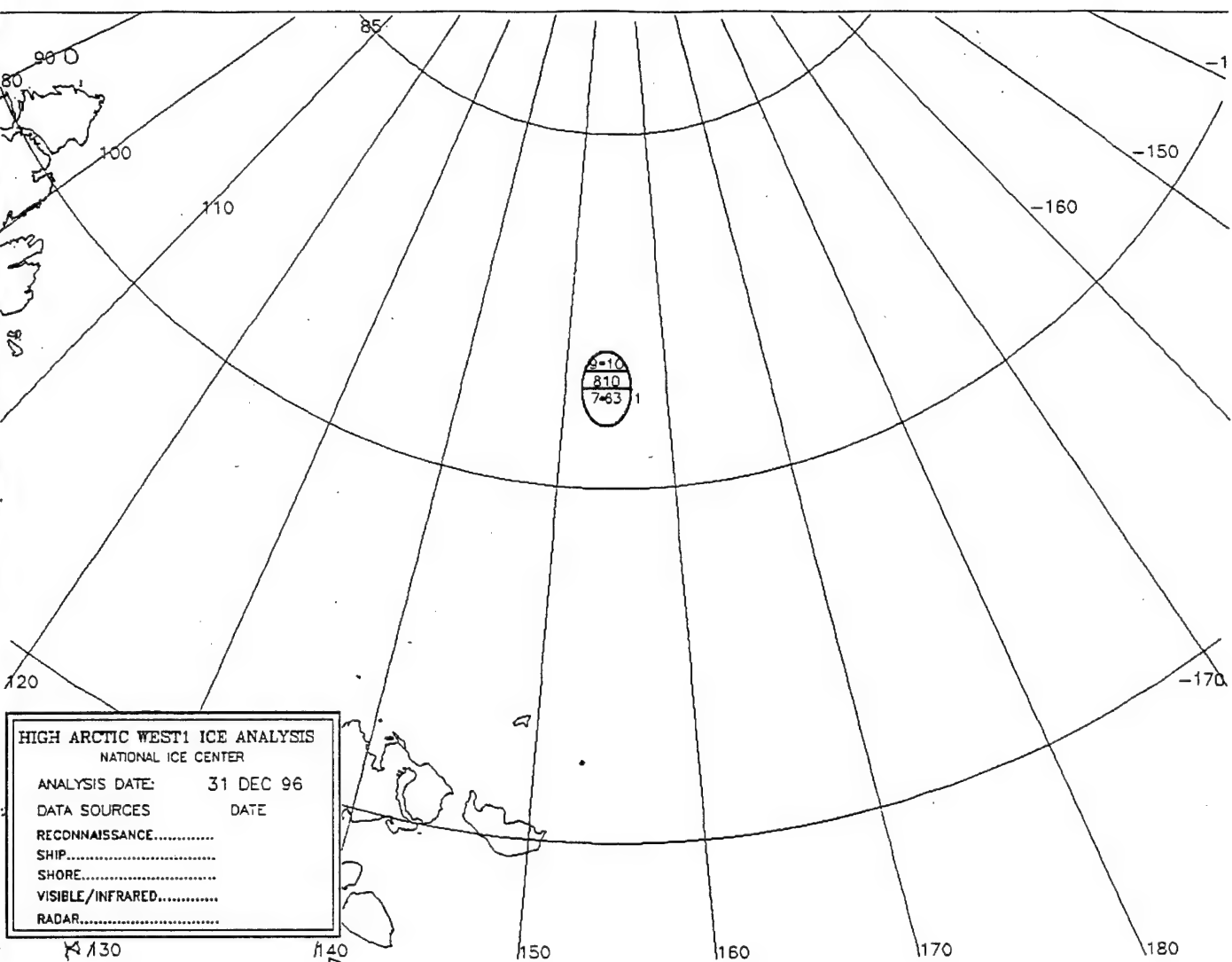
SHIP.....

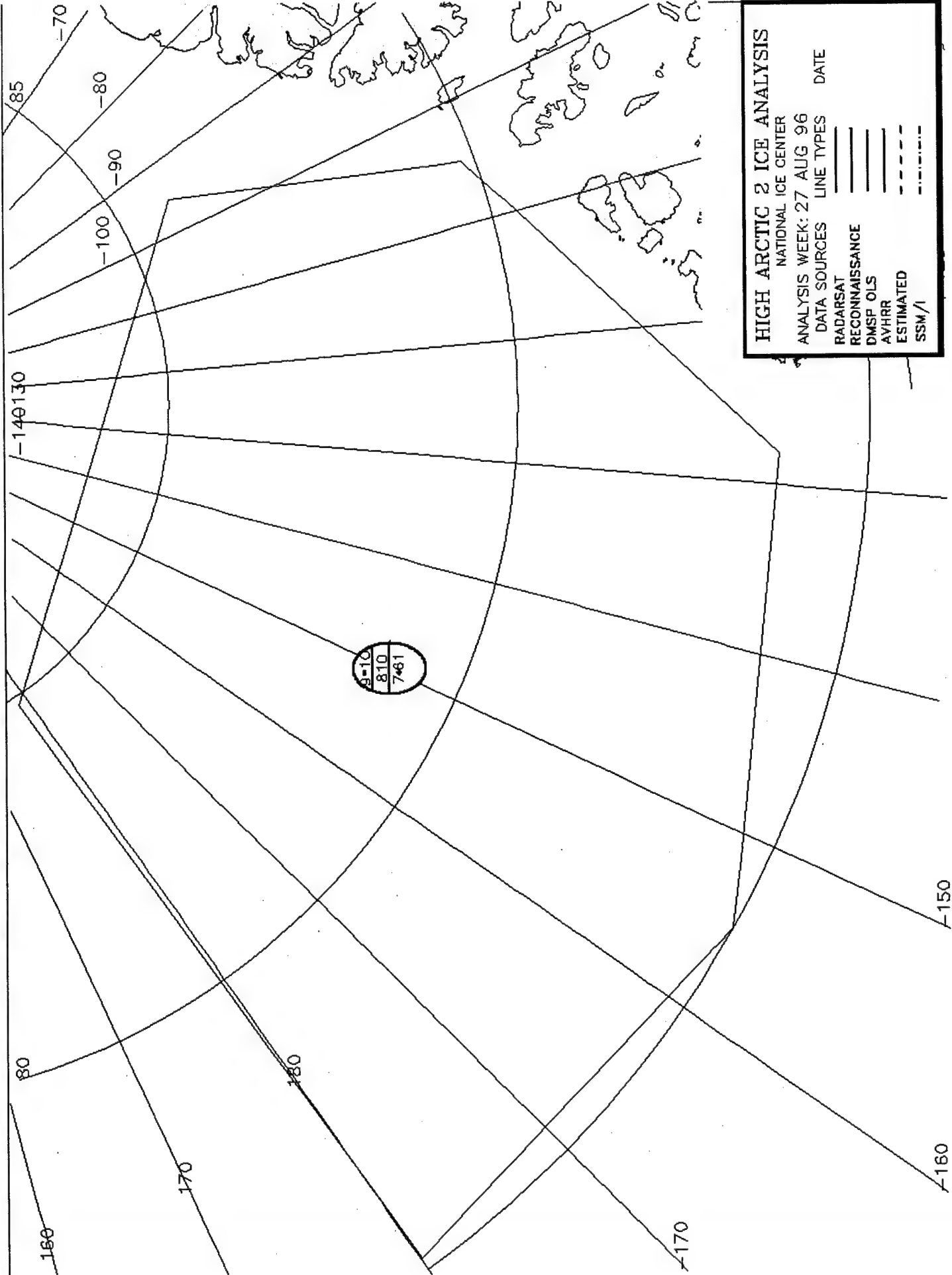
SHORE.....

VISIBLE/INFRARED.....

RADAR.....







HIGH ARCTIC 2 ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS WEEK: 27 AUG 96

DATE

DATA SOURCES

LINE TYPES

RADARSAT

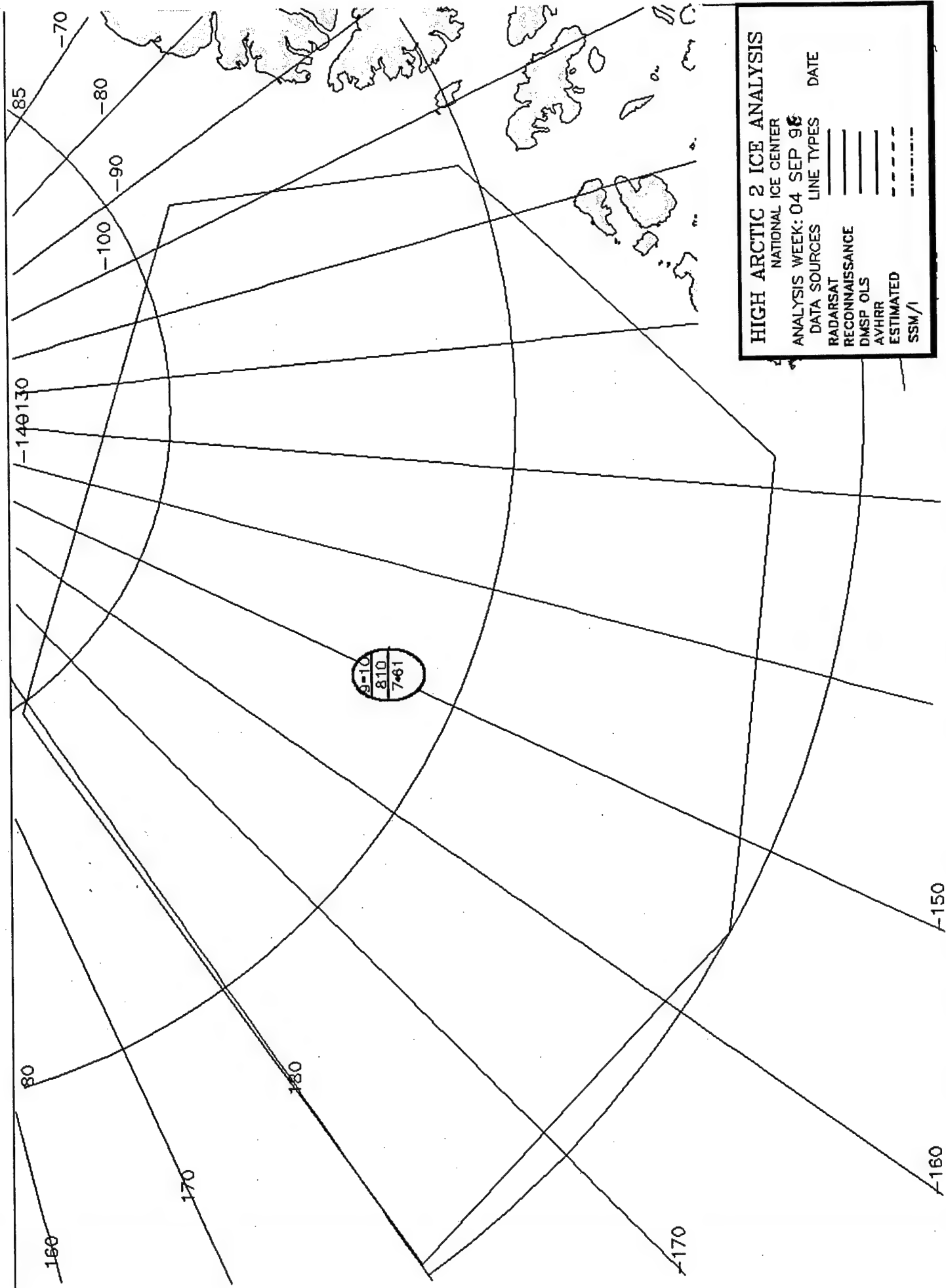
RECONNAISSANCE

DMSP OLS

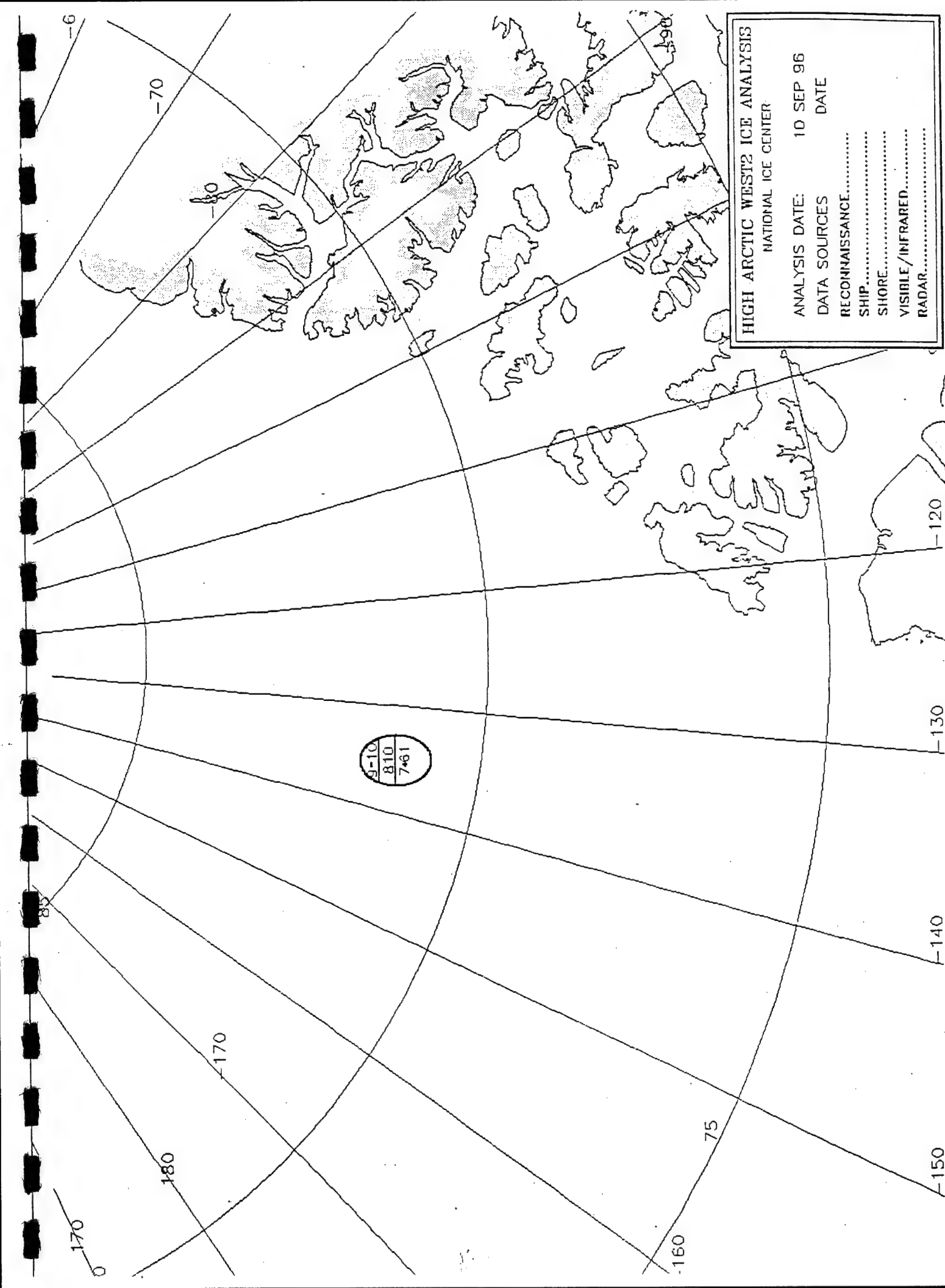
AVHRR

ESTIMATED

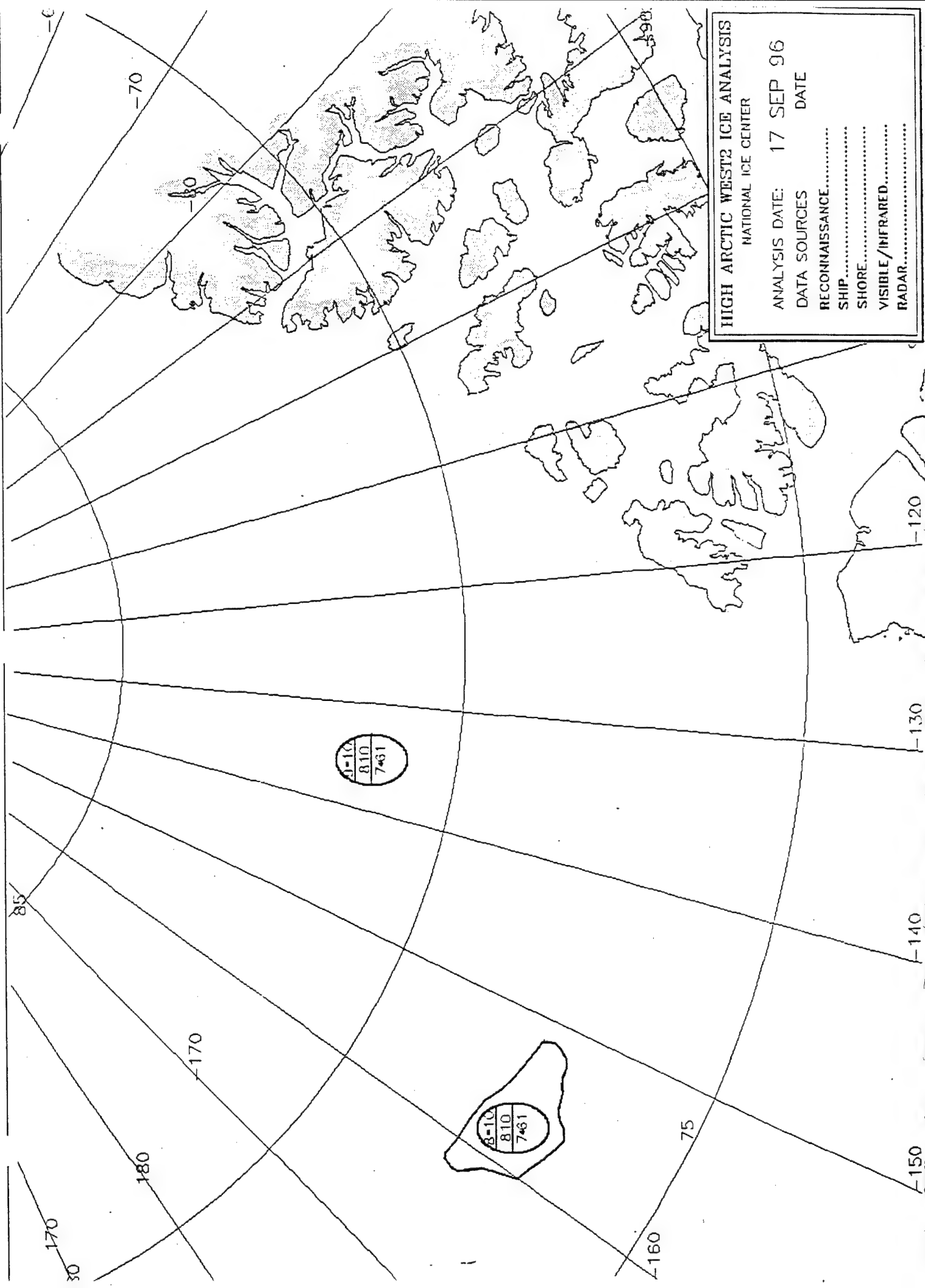
SSM/I



HIGH ARCTIC 2 ICE ANALYSIS	
NATIONAL ICE CENTER	
ANALYSIS WEEK: 04 SEP 98	DATE
DATA SOURCES	LINE TYPES
RADARSAT	_____
RECONNAISSANCE	_____
DMSF OLS	_____
AVHRR	_____
ESTIMATED	_____
SSM/I	_____



HIGH ARCTIC WEST2 ICE ANALYSIS	
NATIONAL ICE CENTER	
ANALYSIS DATE:	10 SEP 96
DATA SOURCES	DATE
RECONNAISSANCE.....	
SHIP.....	
SHORE.....	
VISIBLE/INFRARED.....	
RADAR.....	



HIGH ARCTIC WEST2 ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 17 SEP 96 DATE

DATA SOURCES

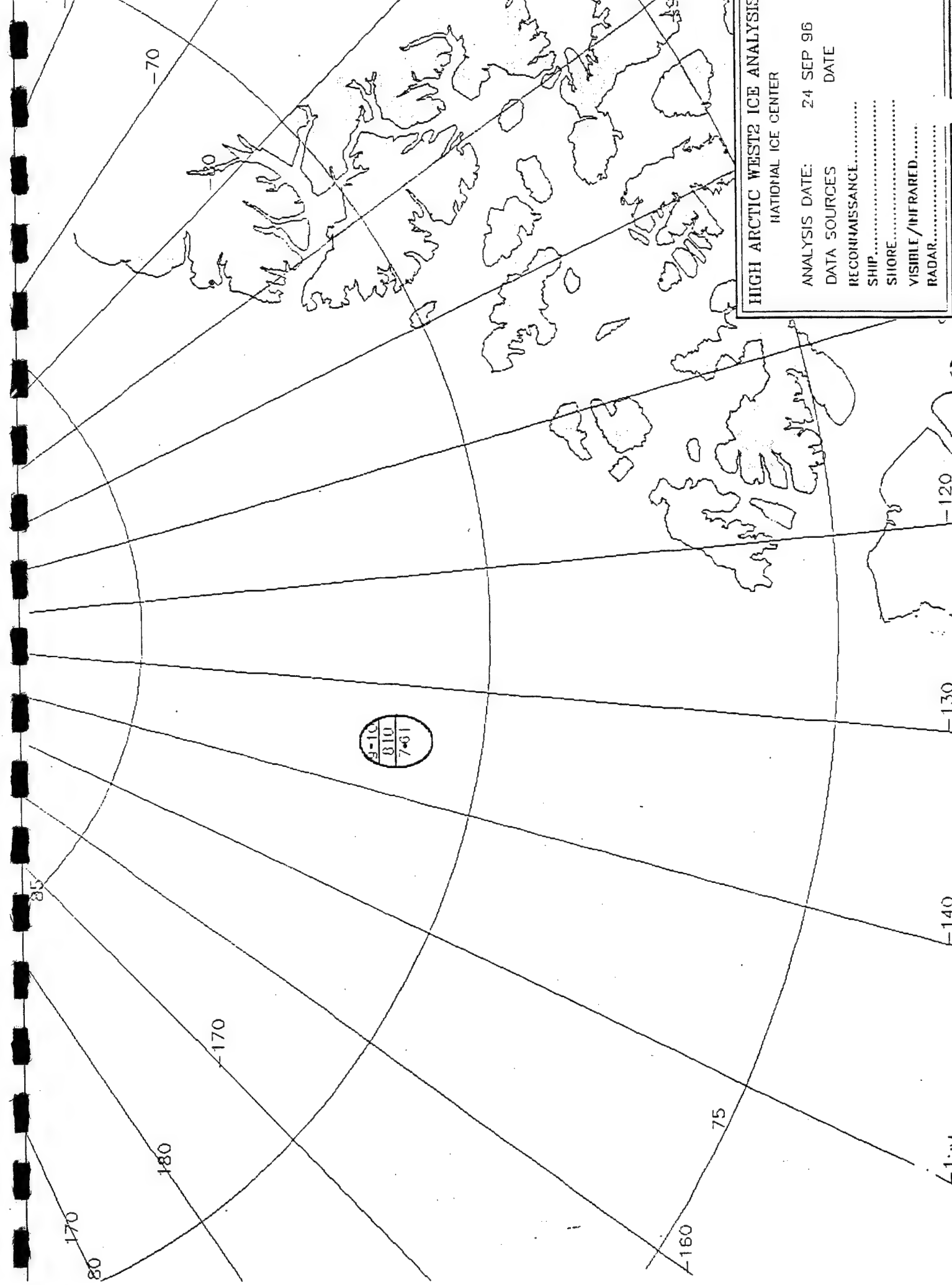
RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED.....

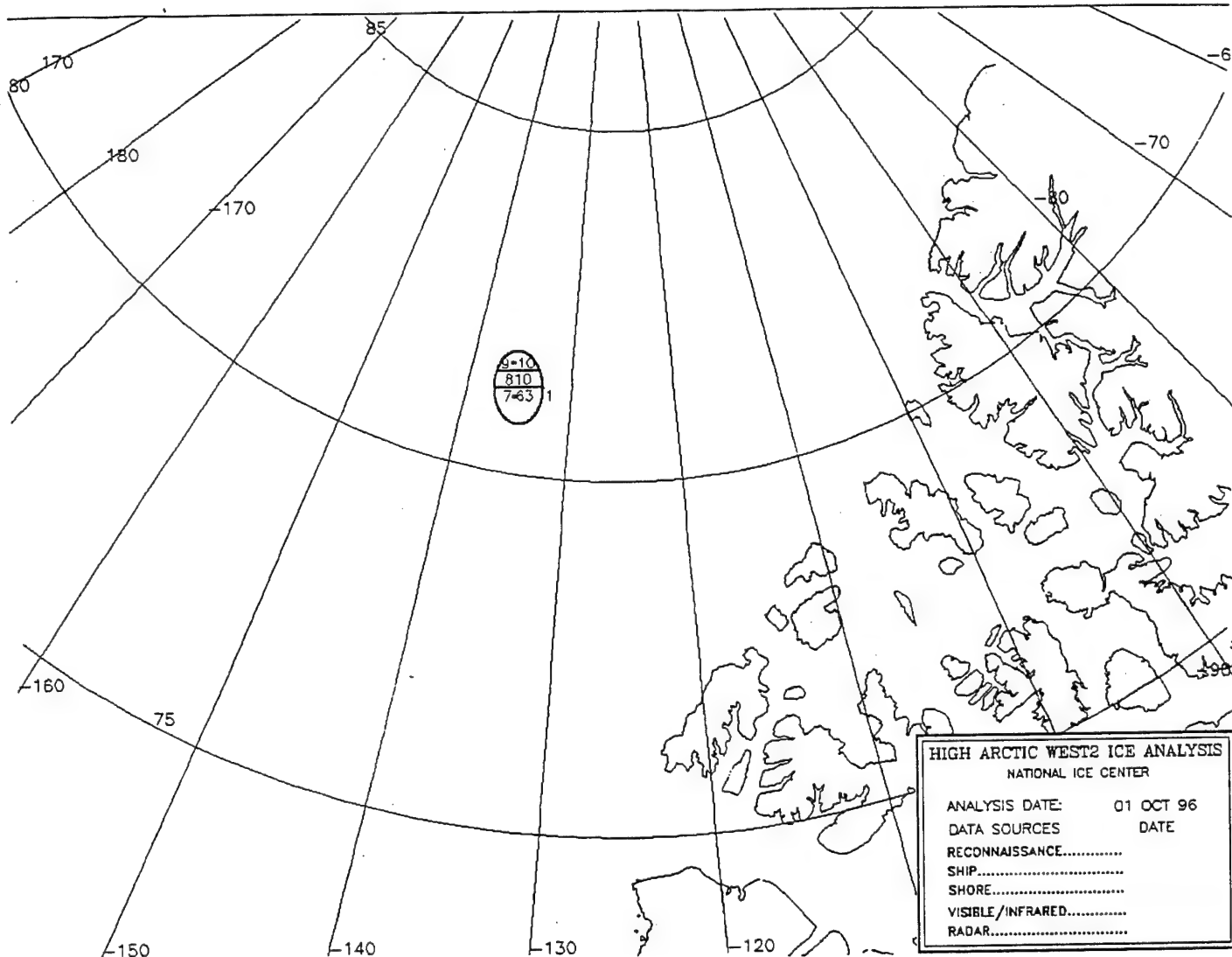
RADAR.....

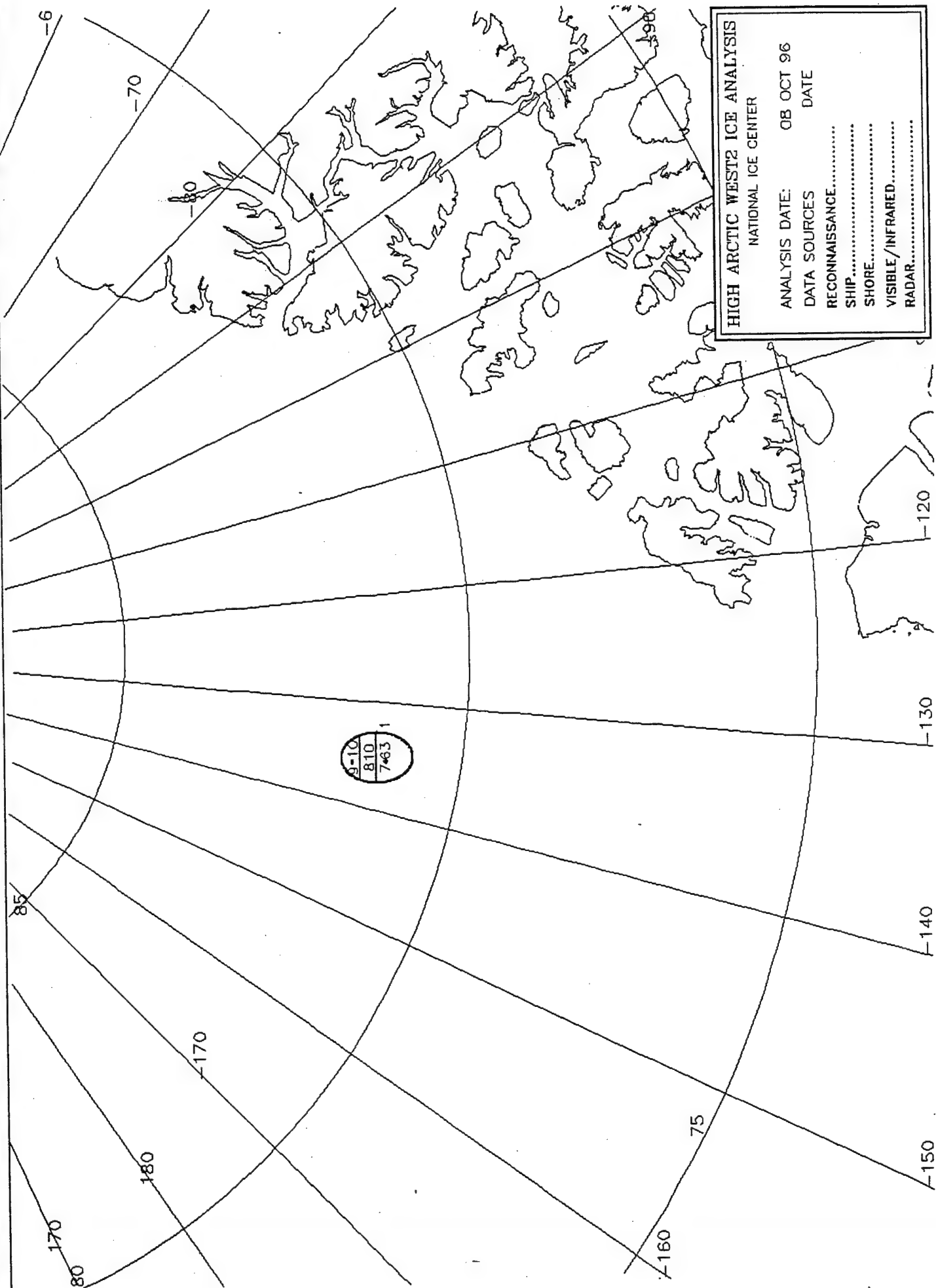


HIGH ARCTIC WEST2 ICE ANALYSIS

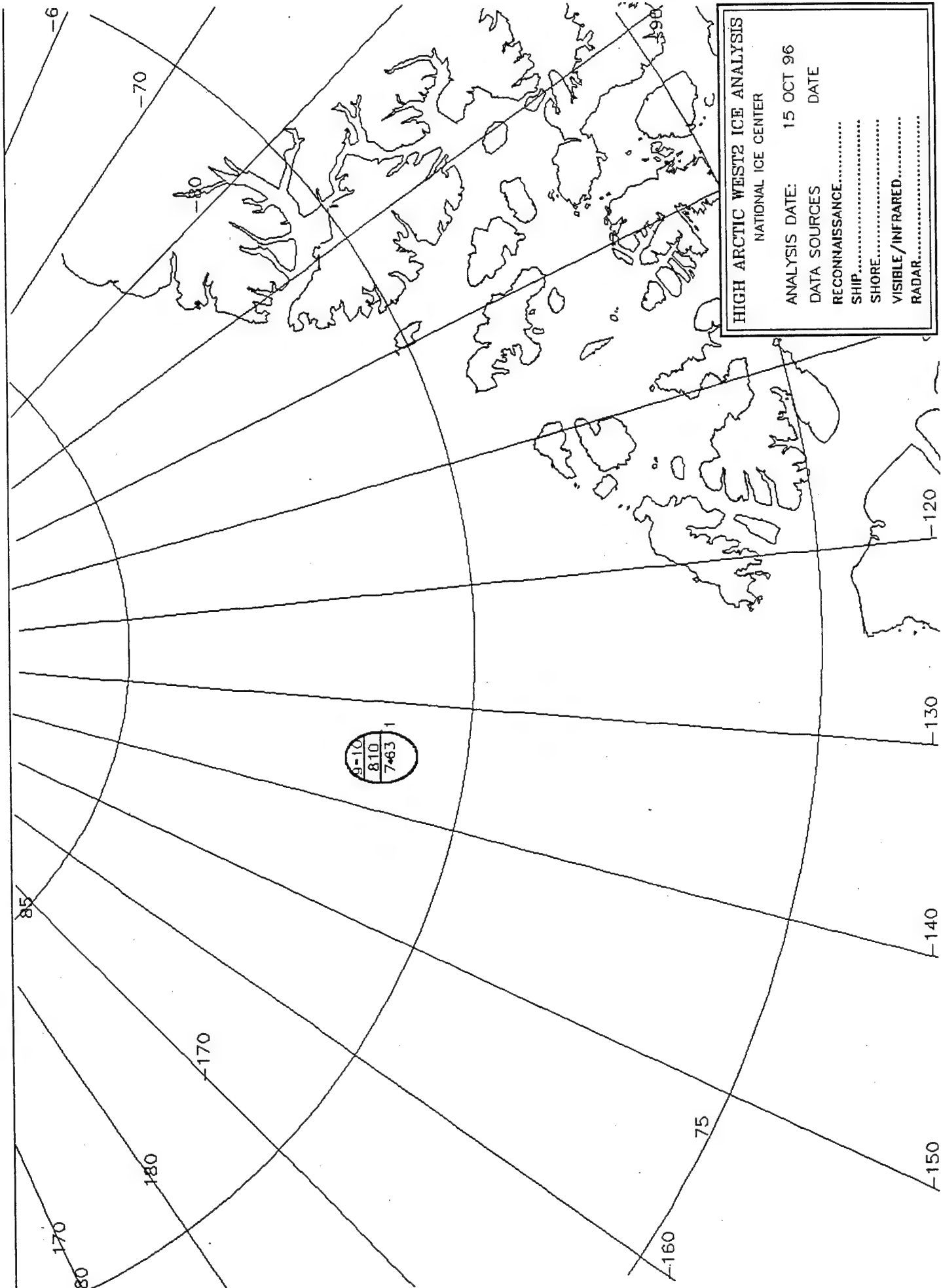
NATIONAL ICE CENTER

ANALYSIS DATE:	24 SEP 96
DATA SOURCES	DATE
RECONNAISSANCE.....	
SHIP.....	
SHORE.....	
VISIBLE/INFRARED.....	
RADAR.....	





HIGH ARCTIC WEST2 ICE ANALYSIS	
NATIONAL ICE CENTER	
ANALYSIS DATE:	08 OCT 96
DATA SOURCES	DATE
RECONNAISSANCE.....	
SHIP.....	
SHORE.....	
VISIBLE/INFRARED.....	
RADAR.....	



HIGH ARCTIC WEST2 ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 15 OCT 96

DATA SOURCES DATE

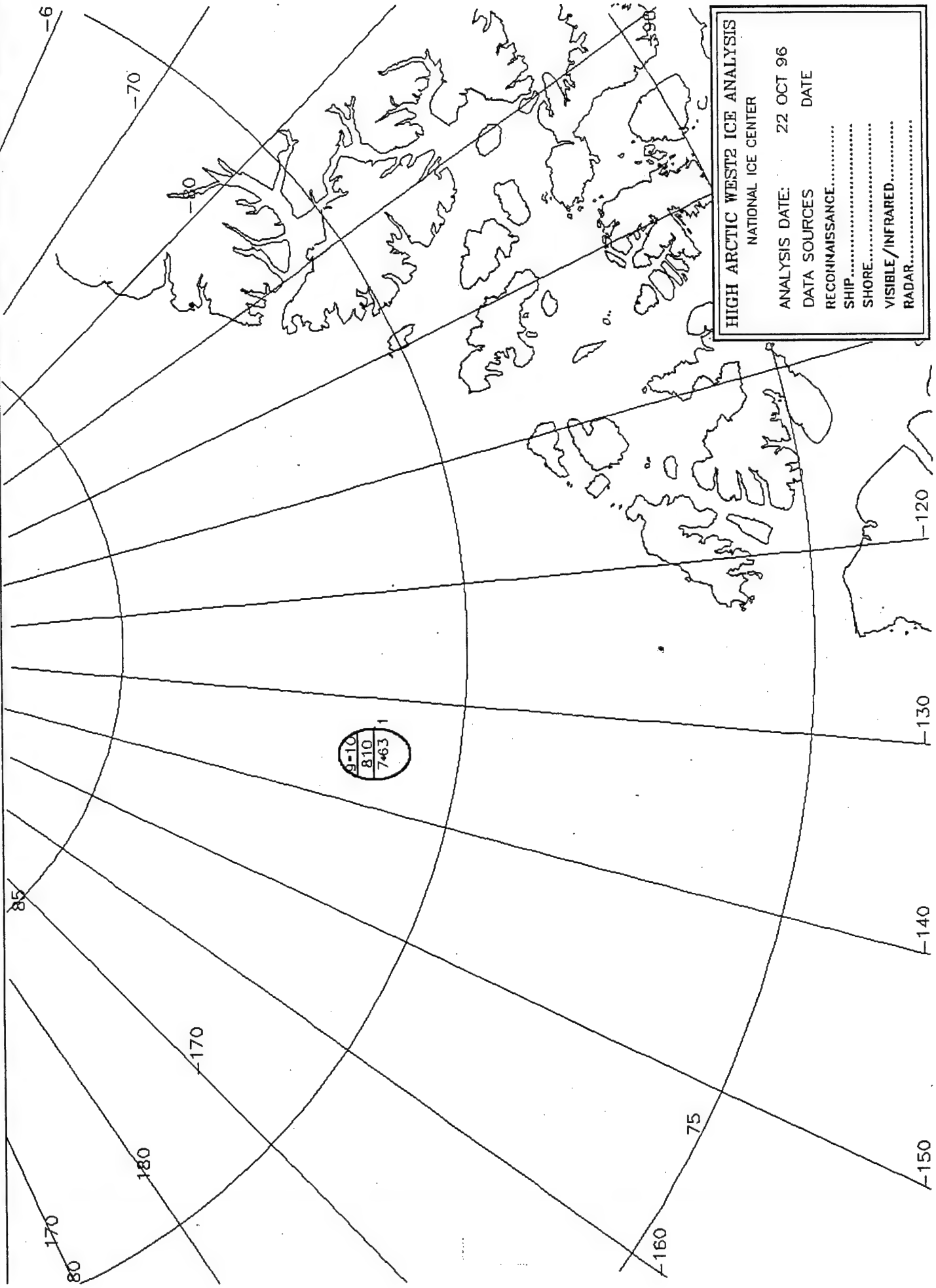
RECONNAISSANCE.....

SHIP.....

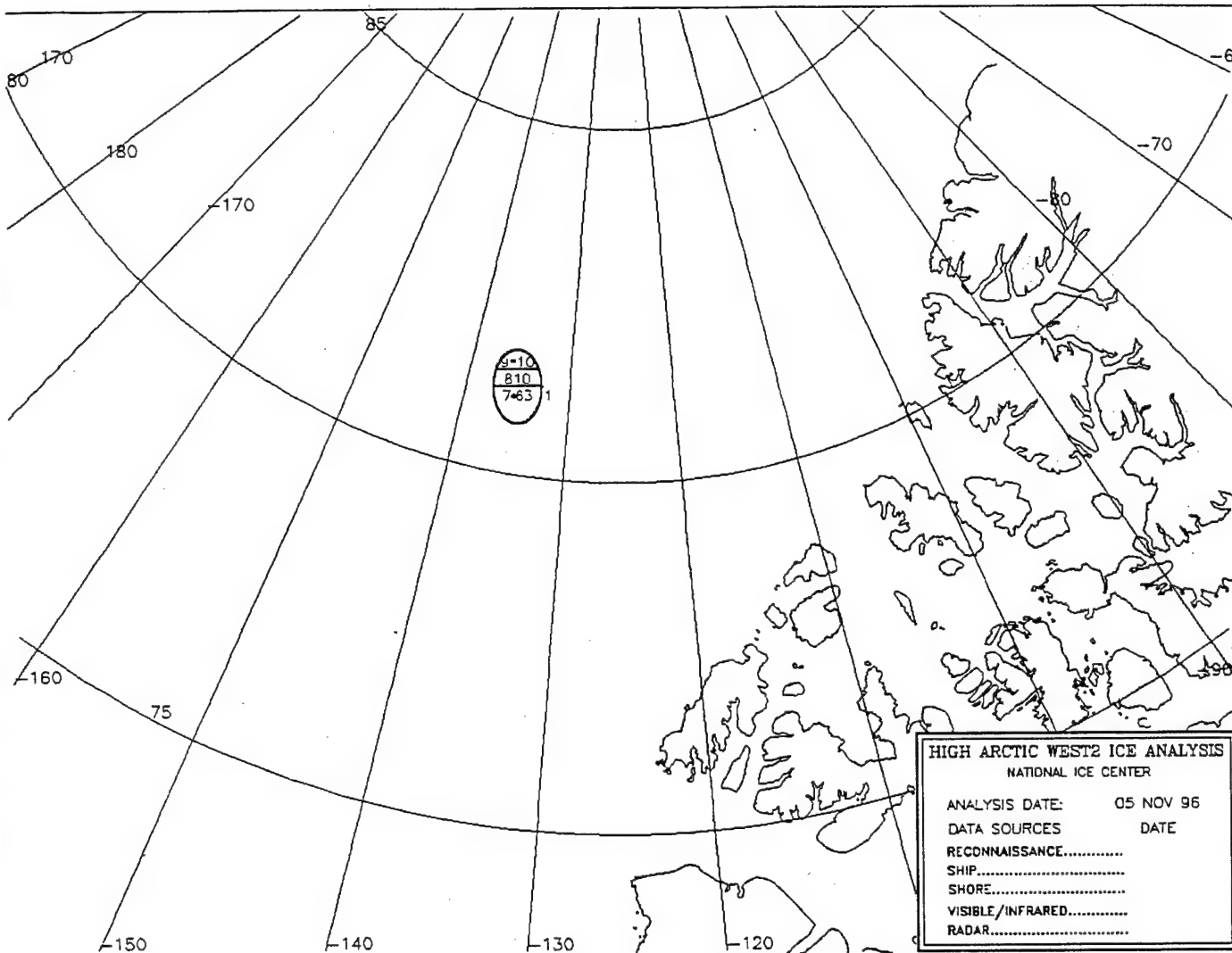
SHORE.....

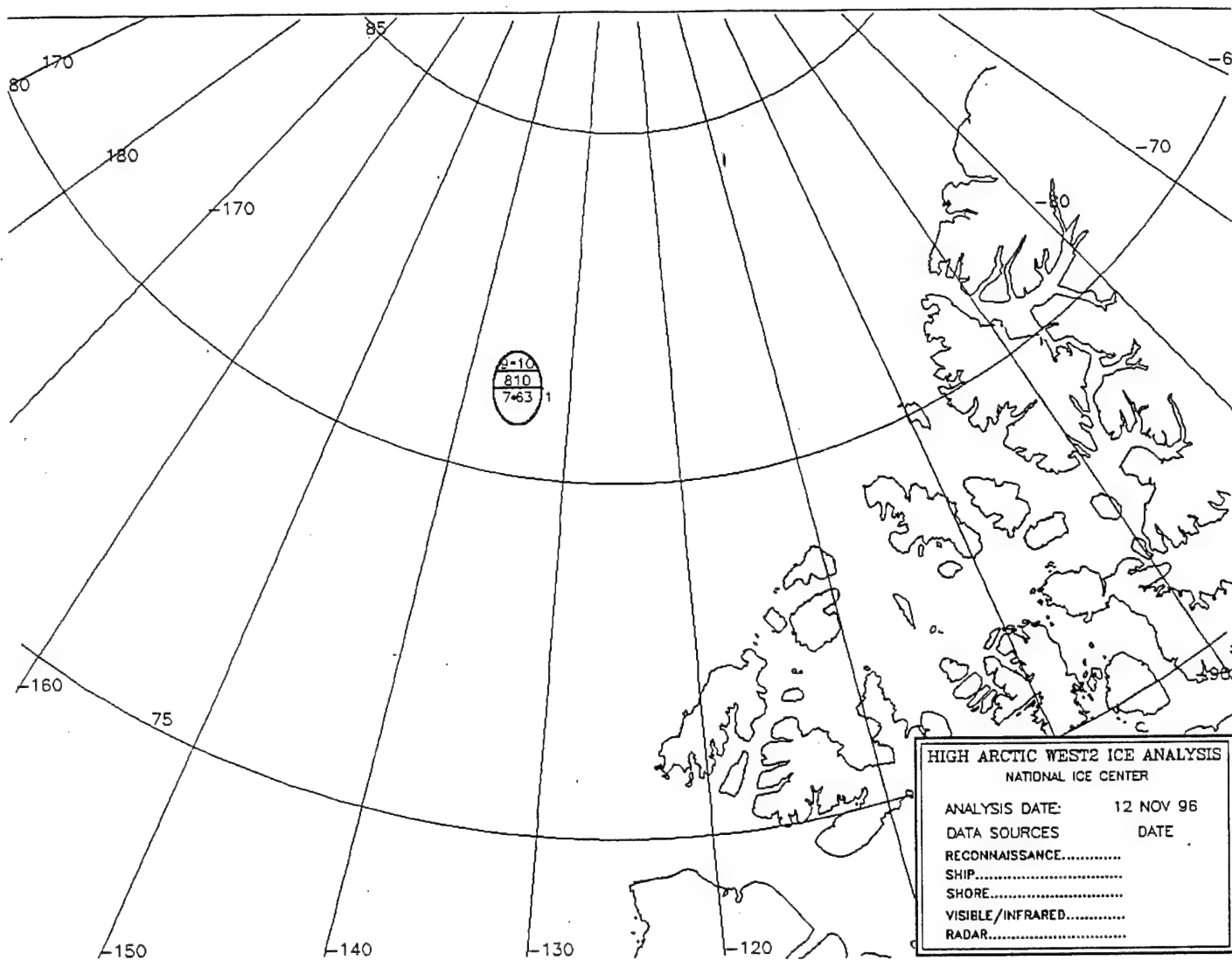
VISIBLE/INFRARED.....

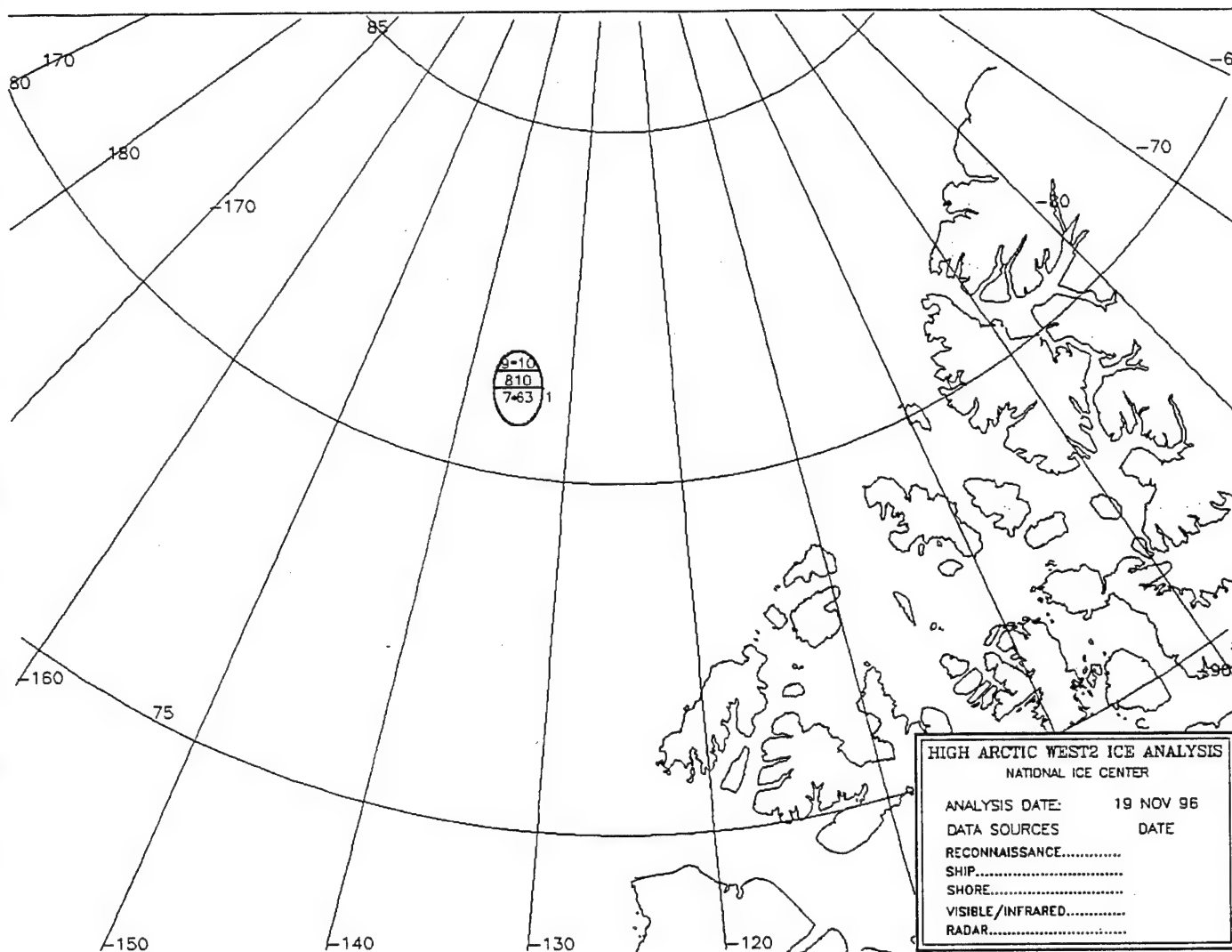
RADAR.....

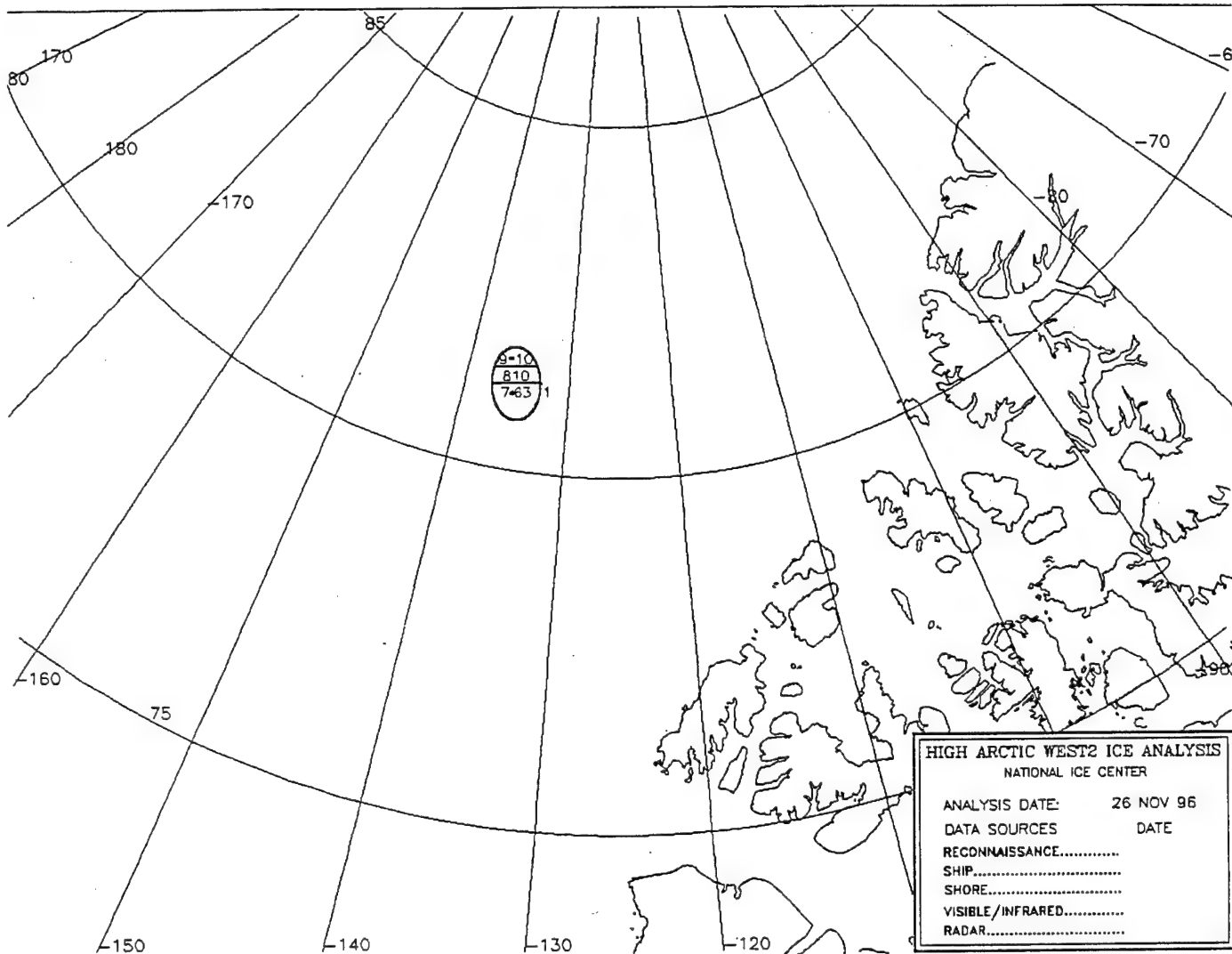


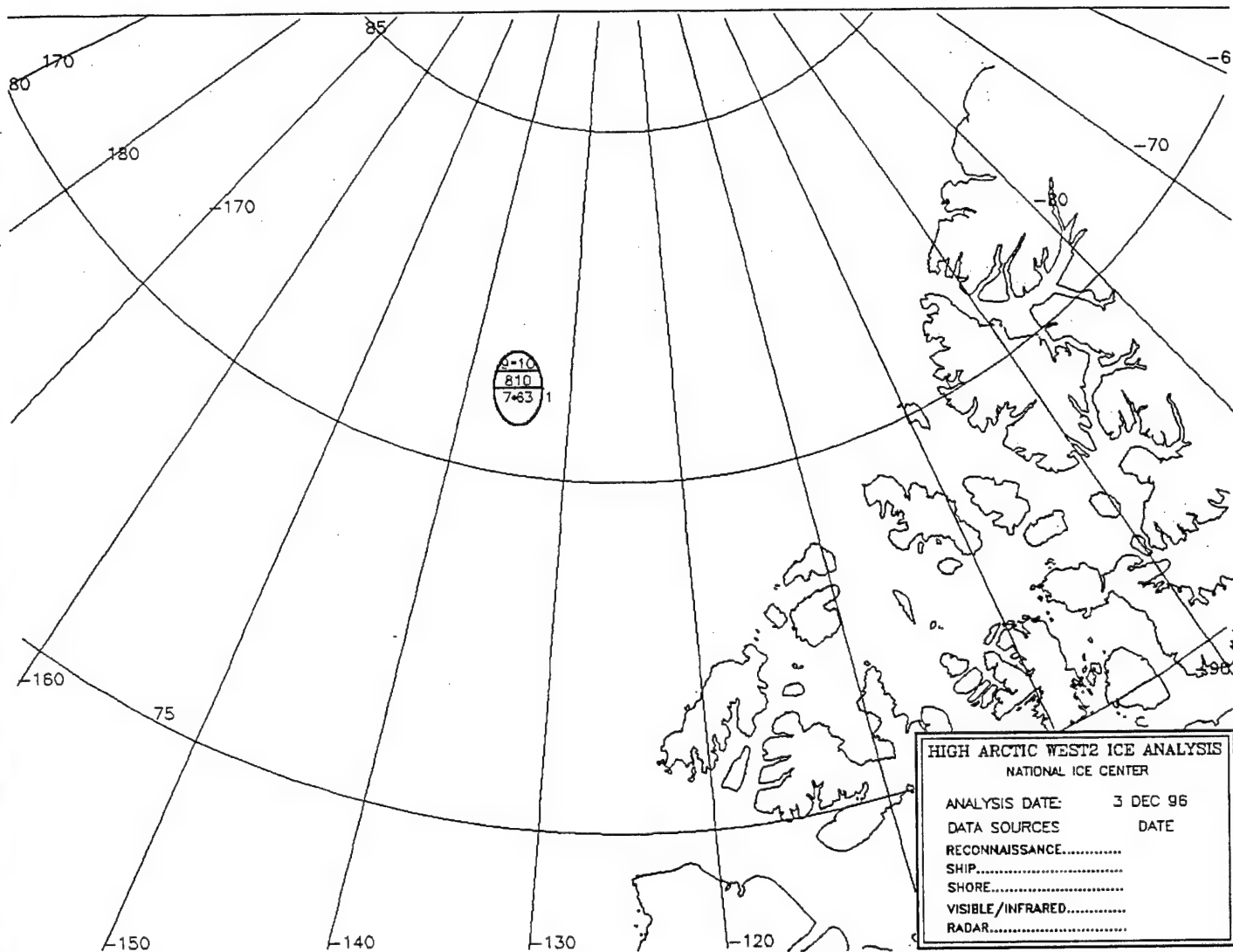
HIGH ARCTIC WEST2 ICE ANALYSIS	
NATIONAL ICE CENTER	
ANALYSIS DATE: 22 OCT 96	DATE
DATA SOURCES	RECONNAISSANCE.....
SHIP.....	SHORE.....
VISIBLE/INFRARED.....	RADAR.....

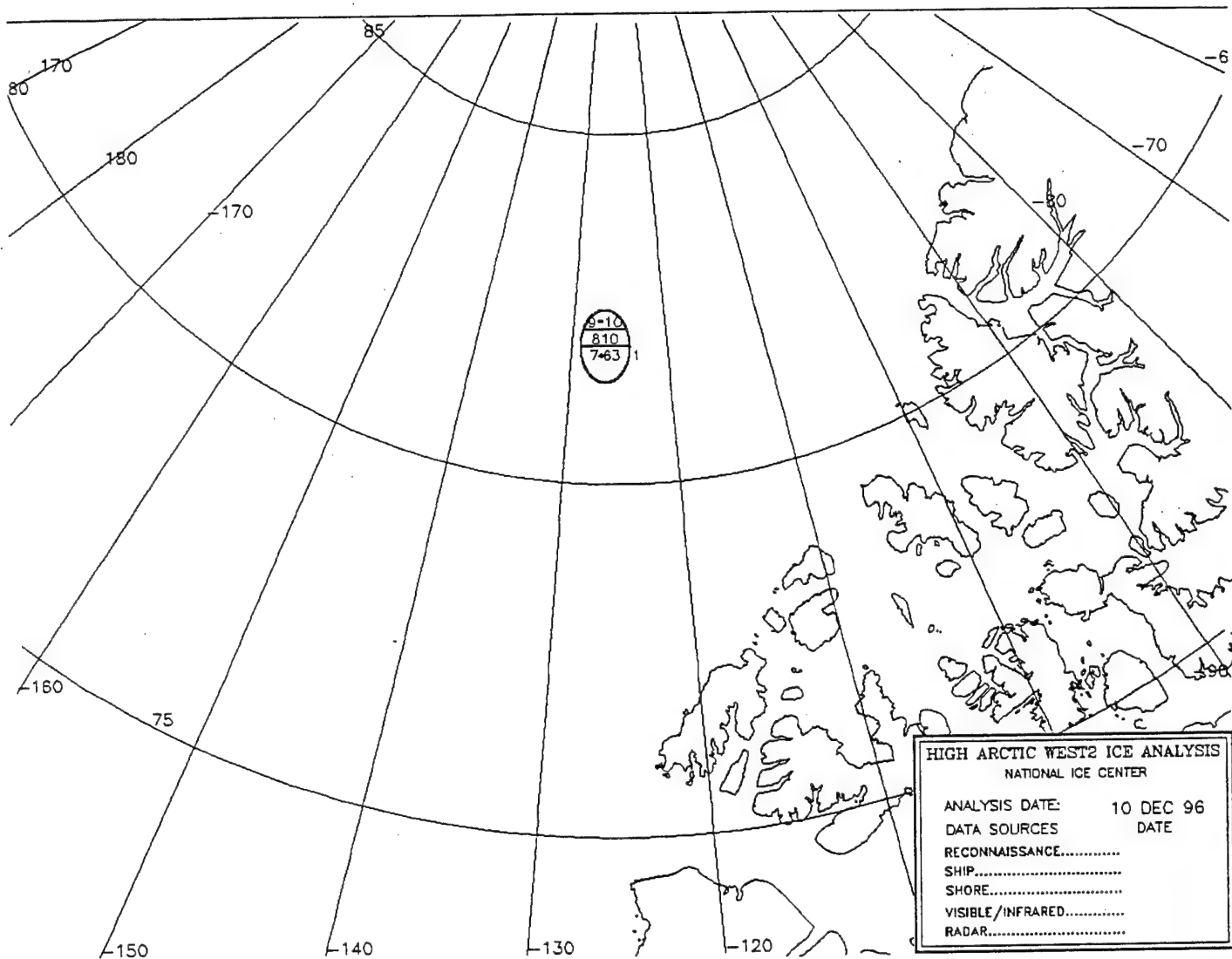


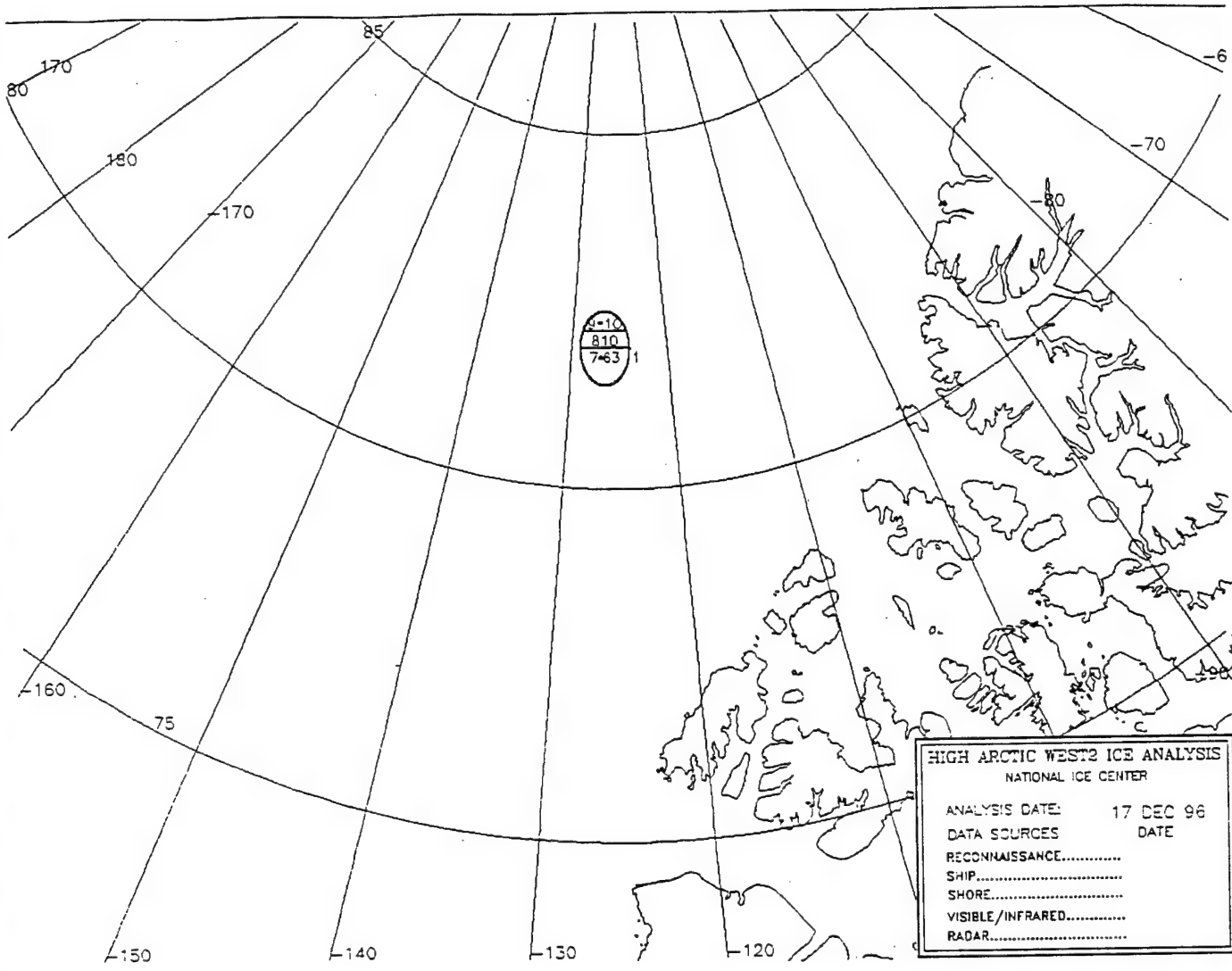


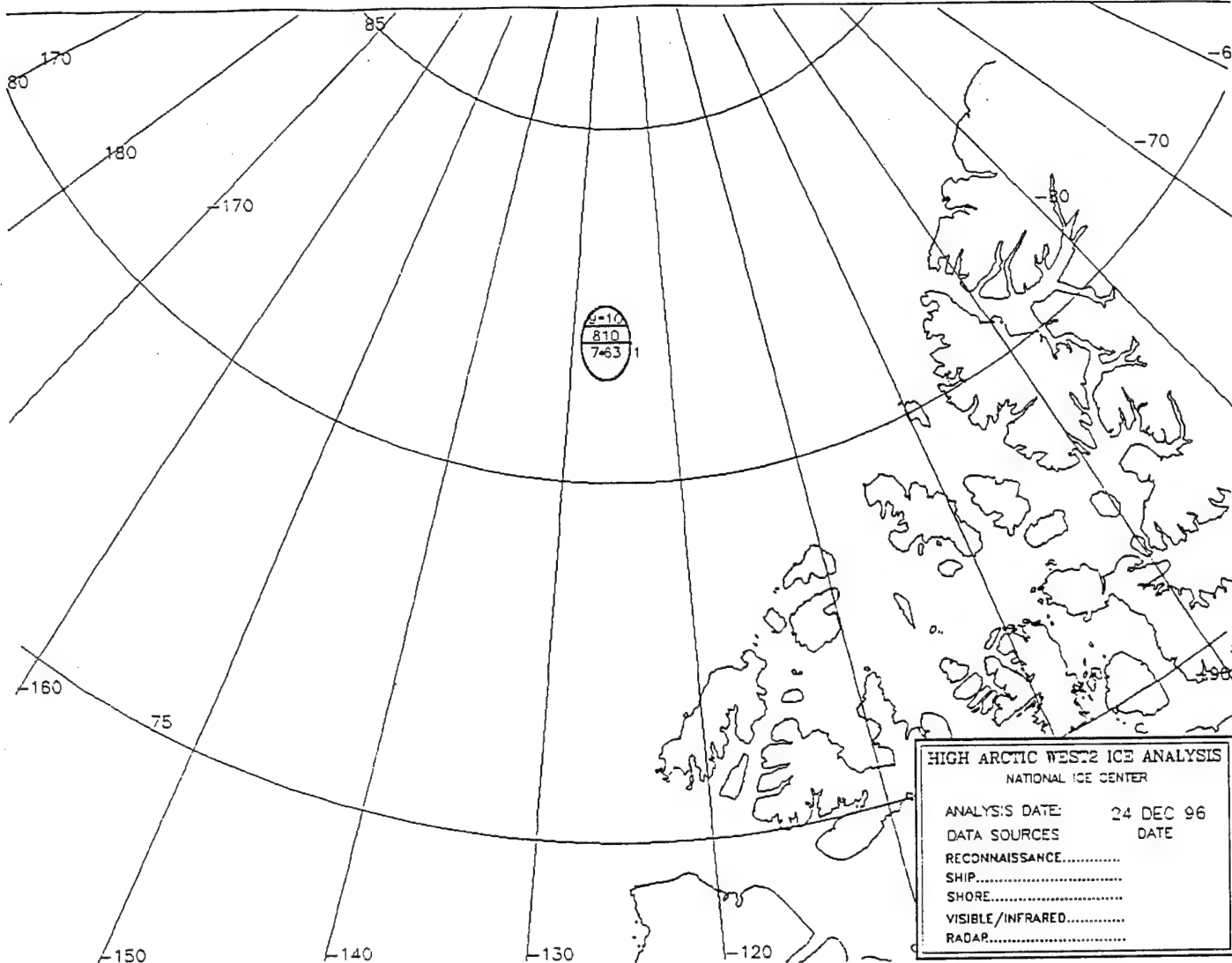


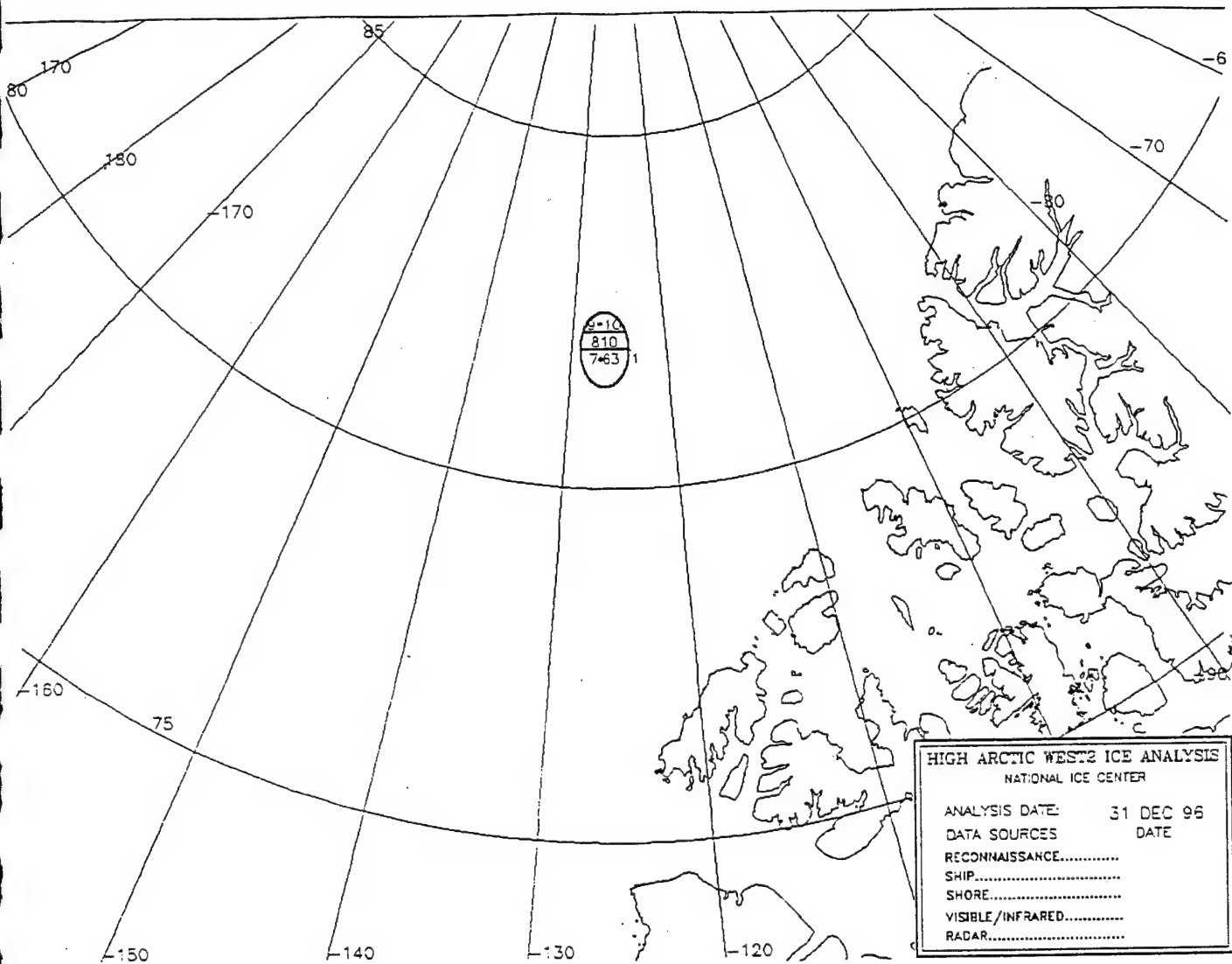












55

SEA OF JAPAN ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 05 NOV 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED.....

RADAR.....

8-10
63
31

3-5
04
31

SEA ICE FREE

45

40

130

140

SEA OF JAPAN ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 12 NOV 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 12 NOV 96

RADAR.....

55

SEA ICE FREE

50

SEA ICE FREE

45

40

130

140



55

SEA OF JAPAN ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 19 NOV 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 17-18 NOV 96

RADAR.....

CM = THEORETICAL ICE THICKNESS
IN CENTIMETERS

50

45

40

130

140

SEA ICE FREE

10
19
73

9-10
3

2-4
12
31

3-5
3

5

55

SEA OF JAPAN ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 26 NOV 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 26 NOV 96

RADAR.....

CM = THEORETICAL ICE THICKNESS
IN CENTIMETERS

50

A = $\frac{9-10}{90}$
31

B = $\frac{10}{19}$
73

C = $\frac{10}{91}$
31

D = $\frac{7-9}{53}$
31

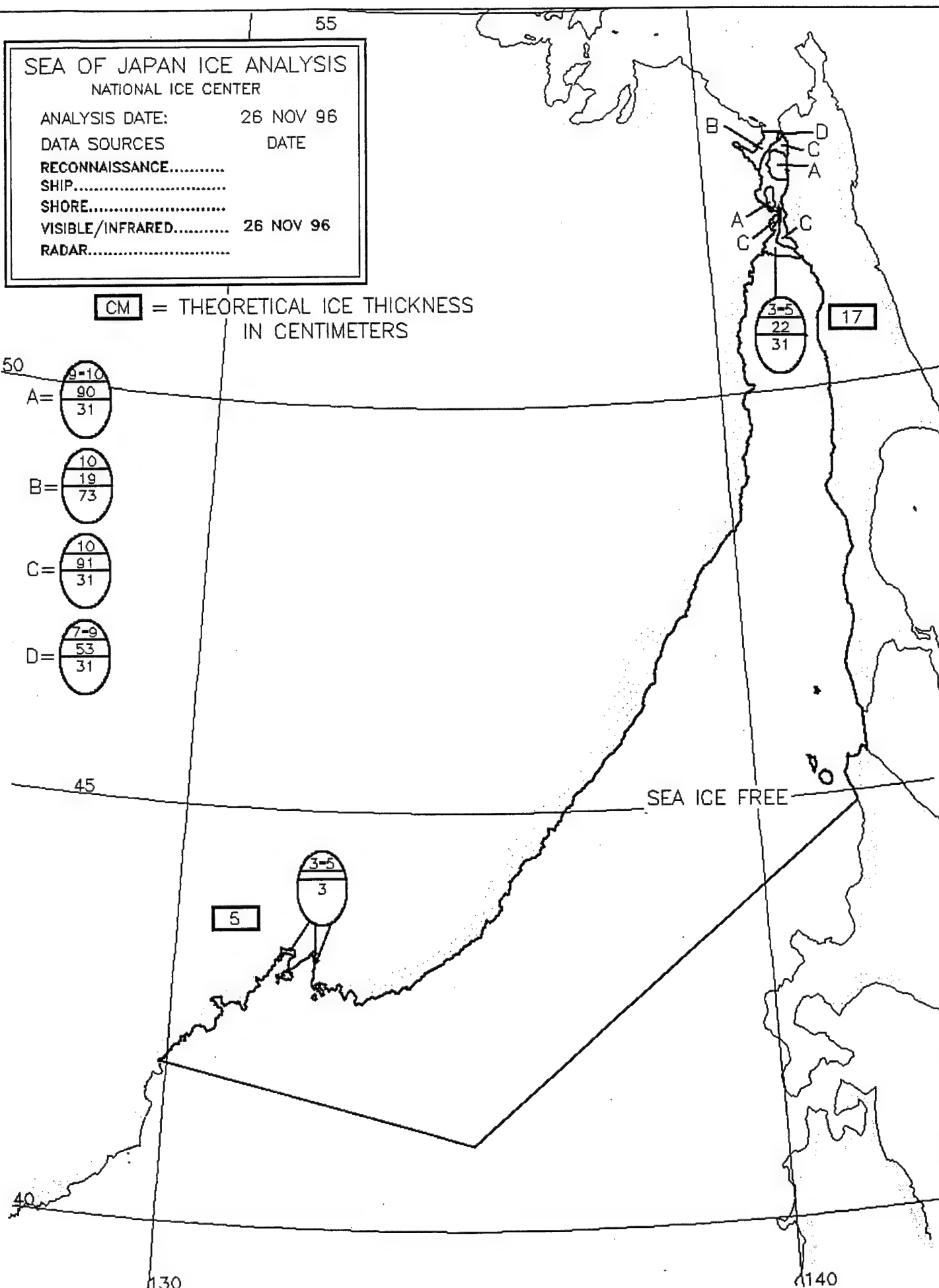
45

SEA ICE FREE

40

130

140



SEA OF JAPAN ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 3 DEC 96

DATA SOURCES DATE

RECONNAISSANCE.....

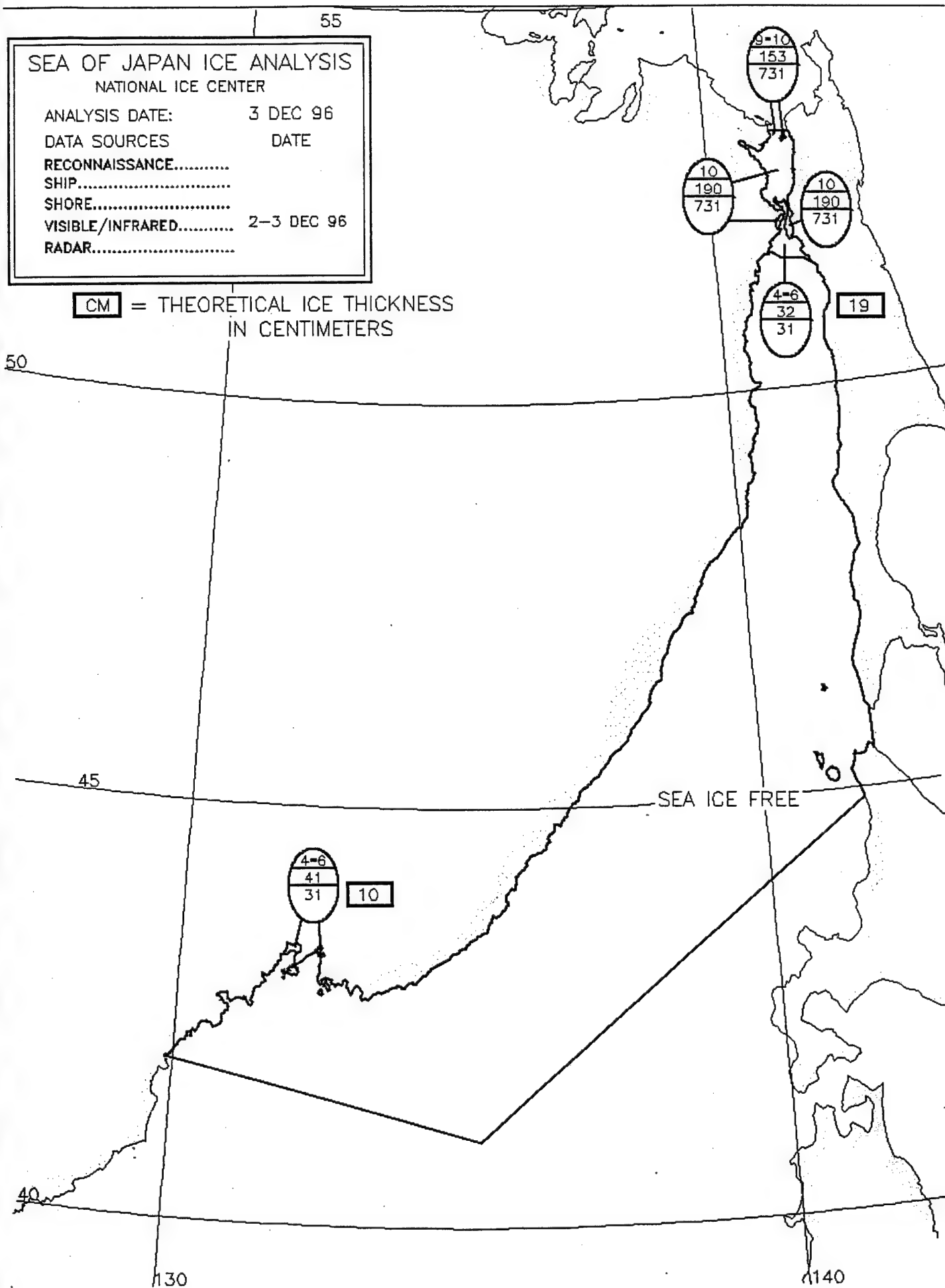
SHIP.....

SHORE.....

VISIBLE/INFRARED..... 2-3 DEC 96

RADAR.....

CM = THEORETICAL ICE THICKNESS
IN CENTIMETERS



SEA OF JAPAN ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 10 DEC 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 07 DEC 96

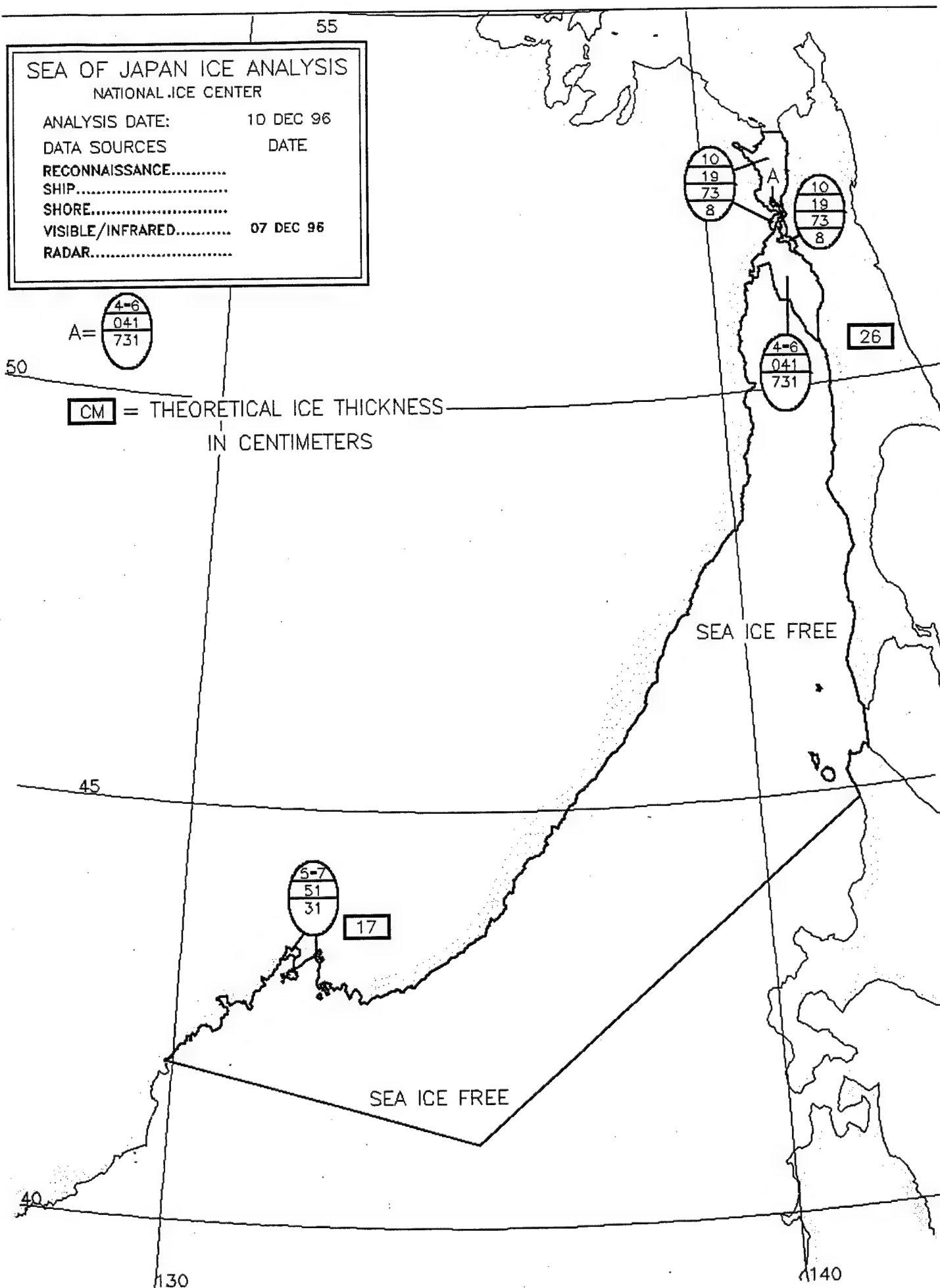
RADAR.....

A=

4-6
041
731

CM

 = THEORETICAL ICE THICKNESS
IN CENTIMETERS



SEA OF JAPAN ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 17 DEC 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 13 DEC 96

RADAR.....

CM = THEORETICAL ICE THICKNESS
IN CENTIMETERS

50

A=

5-7
33
31
~10

B=

7-9
241
731
~10

45

SEA ICE FREE

40

130

140

55

10
37
73
8

10
37
73
8

3-5
121
731

3-5
220
731

30

10
3
8

9-10
72
31

3-5
31
31
~10

55

SEA OF JAPAN ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 24 DEC 96
 DATA SOURCES DATE
 RECONNAISSANCE.....
 SHIP.....
 SHORE.....
 VISIBLE/INFRARED.....22 and 23 DEC 96
 RADAR.....

50

A=

9-10
252
731

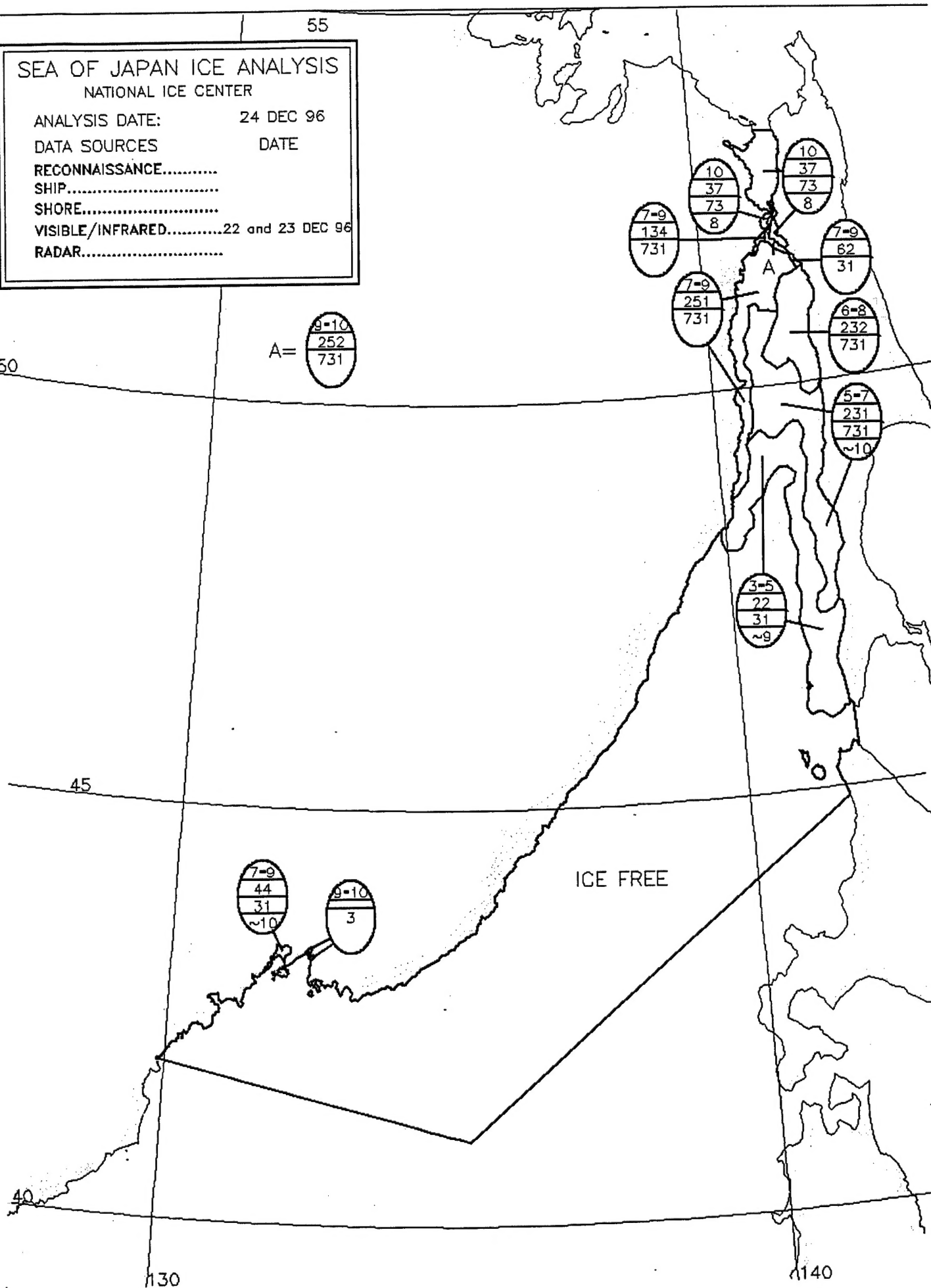
45

ICE FREE

40

130

140



55

SEA OF JAPAN ICE ANALYSIS

NATIONAL ICE CENTER

ANALYSIS DATE: 31 DEC 96

DATA SOURCES DATE

RECONNAISSANCE.....

SHIP.....

SHORE.....

VISIBLE/INFRARED..... 28-30 DEC

RADAR.....

CM = THEORETICAL ICE THICKNESS
IN CENTIMETERS

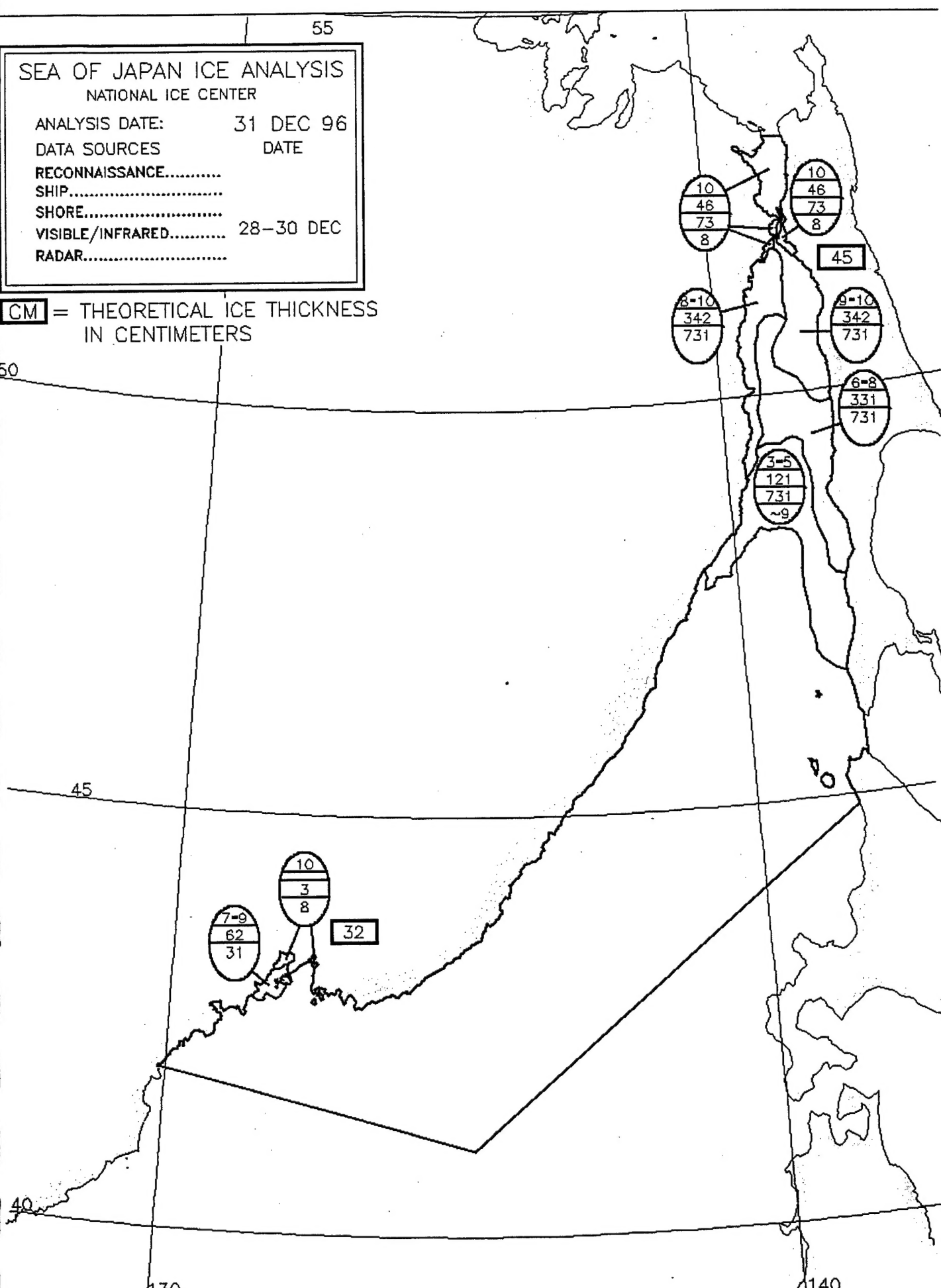
50

45

40

130

140



From	To	Sensor Platform	Sensor and Type	Spectral Region	Resolution	Coverage
01-96	12-96	DMSP F-10, 11, 12, 13	<u>OLS Fine:</u> VIS IR <u>SSM/I</u>	0.4 to 1.1 μm 10.2 to 12.8 μm 19.35 and 37GHz	0.55 km 25 km	3,012km 3,012km
01-96	12-96	NOAA 12, 14	<u>AVHRR:</u> HRPT/LAC VIS NIR IR	0.58 to 0.68 μm 0.72 to 1.10 μm 3.55 to 3.93 μm	1.1km at nadir; 2.5km at swath edge	4,000km
01-96	12-96	RADARSAT	<u>AMI</u> SAR	C- Band (5.3 Ghz)	100km	500km

TABLE 1. 1996 Arctic Satellite Data Sources

Abbreviations and Acronyms:

AMI- Active Microwave Sensor
 AVHRR- Advanced Very High Resolution Radiometer
 cm- centimeter
 ERS- Earth Remote Sensing Satellite
 GHz- GigaHertz
 HRPT- High Resolution Picture transmission
 IR- Infrared
 km- kilometer
 LAC- Local Area Coverage
 NIR- Near Infrared
 OLS- Operational Linescan System
 RADARSAT- Radar Satellite
 SAR- Synthetic Aperture Radar
 SSM/I- Special Sensor Microwave Imager
 μm - micrometer
 VIS- Visible
 RADARSAT- Radar Satellite
 SAR- Synthetic Aperture Radar

Prepared under the authority of Commander, Naval Oceanography Command,
 Stennis Space Center, MS 39529-5000